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AUDUBON MAGAZINE

A BI-MONTHLY MAGAZINE DEVOTED TO THE PROTECTION AND PRESERVATION OF OUR NATIVE WILDLIFE

Our Motto: A Bird in the Bush Is Worth Two in the Hand

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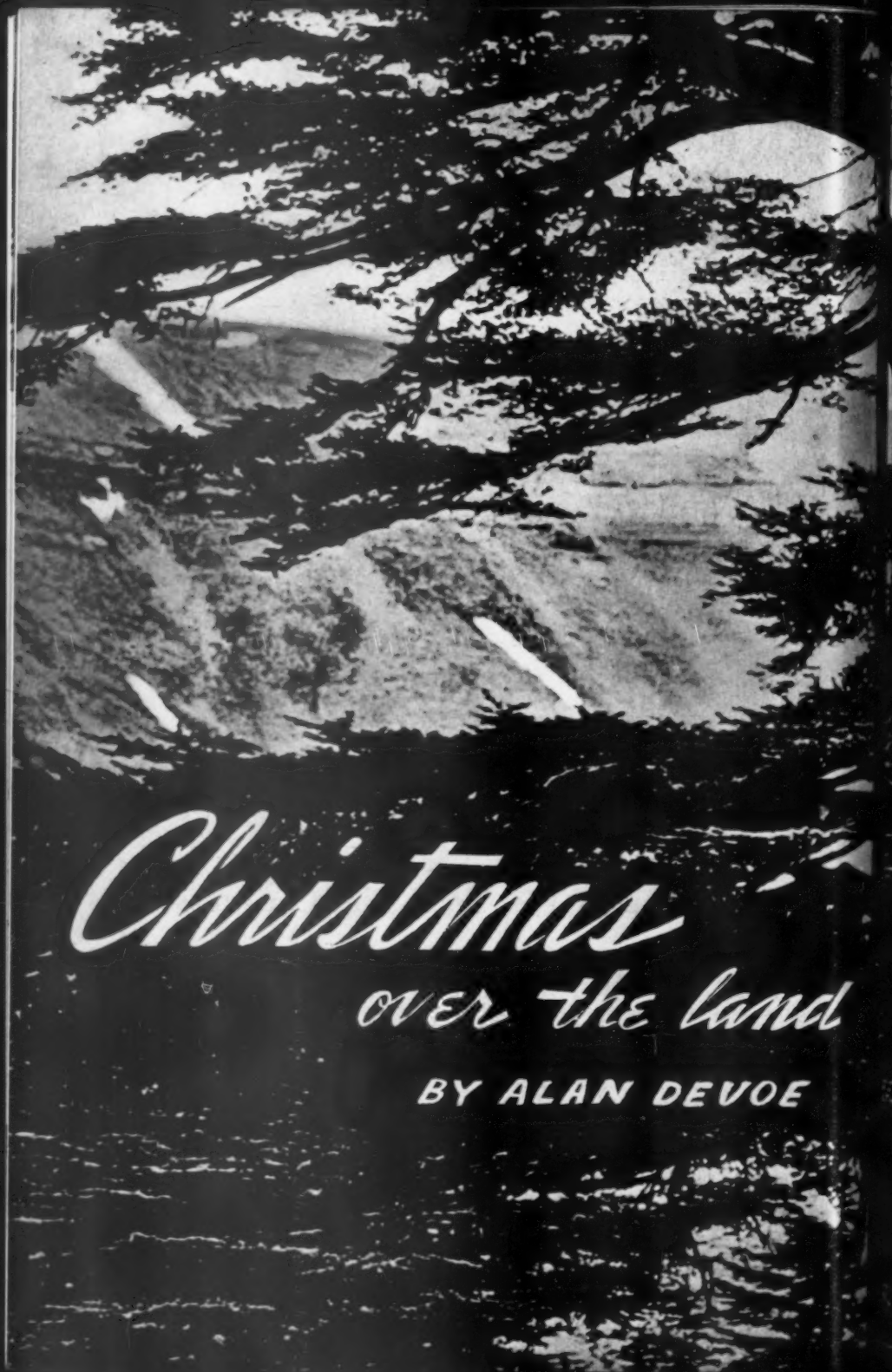
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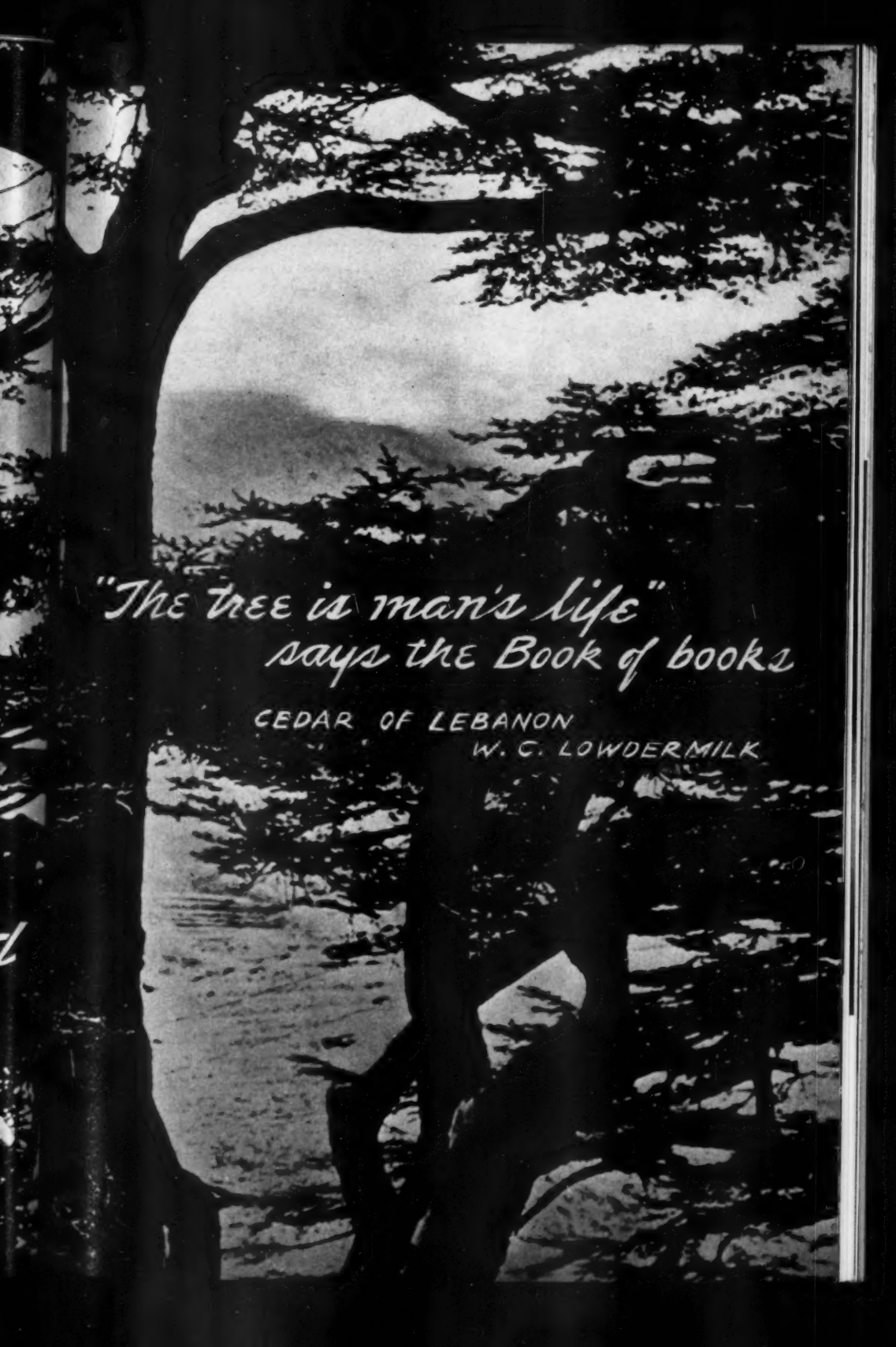
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Christmas
over the land
BY ALAN DEVOE


"The tree is man's life"
says the Book of books
CEDAR OF LEBANON
W. C. LOWDERMILK

Alan Devoe recommends Christmas as the season in which to renew our deep affinity with nature. If a man will go to the woods, there may pour into him, up out of the silent whiteness of the snow, a knowing that goes back and back to the beginning of humanity.

IT is always good for a man to go into the woods. It was from the forest that he originally came, and, though he has been a far wanderer, and has traveled in many ways that are not the woods-ways, his deepest blood is still in affinity with hemlock-trees and chickadees and deer; and it is well that now and then he should go home. Especially may he profit if he goes home, like this, in the darkness; for in the darkness his civilized and urbanized self is most quickly lost, and his old animal-naturalness made to repossess him. And most especially of all, it is a profiting thing if a man can make this pilgrimage to his old home, this healing return to the aboriginal homeland of all his wandering race, on the night of Christmas or on Christmas Eve.

Christmas is a time when all of Christendom, much of it perhaps no more than nominally religious during the year's other 364 days, does have a resurgence, true and tremendous, of the spirit of faith. It is not mystagoguery to say that a strange and special feeling sweeps over men in this season that has been holy for two millenniums. Men cast about them, and reflect, and wonder where they stand. They are moved to think about great things. They have at once an exultation and a humility. They remember, perhaps, a stable, and the patient beasts in their stalls in it, and the earth-shaking event that is said to have happened in that humble rustic place. They recall a man who is said to have been very much more than a man, but the essence of whose magical and mystical attraction is precisely the fact that he was simple and natural, comfortably at home with rural fishermen, perpetually fond of filling his talk with homely references to flowers and birds and animals and hills. Christmas is a very earth-close season. It is a time when people think of central and fundamental things, elemental and natural things . . . the rocks and the conies and the cedars of Lebanon. The pomp and the pretense go out of us at Christmas time. We lay aside our little prides. In one idiom or another, we are moved to make acknowledgment that the universe bespeaks That Which is greater than we are. "Before Abraham was, I am." The blithest care-not kind of man must feel, Christmas, the rolling thunder of those words.

Well, let every man go to his church, by all means, if he feels moved to it on Christmas. I do not care what he does with the day, or what is the rite of his worship. But I recommend most heartily that he give the eve of Christmas, or a part of the dark hours of Christmas night, to a temple that is very much older than any temple built with hands: a place where he may find the faith that is older than any faith that has been formalized. Perhaps his rite in church is true; perhaps it is false. All creedal things are most precarious. But if a



Henry H. Graham

man will go to the woods, humble-hearted and with the clamor of his ego hushed, there may pour into him —up out of the silent whiteness of the snow, down from the star-bright vault that is over him, indeed from every cedar-scent and leaf-rustle and owl-hoot and glimmer of watching rabbit-eyes—a Knowing that goes back and back to the beginning of humanity, and is surer than thought and stronger than syllogisms. No, there are not any words for it. Infinity is not caught in a net. The Great Mystery which enwombs us all is not delineated by a tongue or a typewriter.

My own excursion, for the night of Christmas, goes always the same way. The small mountain that rises behind my farmhouse and is called Phudd Hill, is cleft by a ravine—formed by the seepage of centuries from a bog that is almost on the mountaintop. The ravine starts a few paces from my back door as only a trivial gulley, and then, as one follows it, it grows to be an ever deeper and deeper cleft in the body of the hill, until finally it has become a great shadow-dark tarn, its steep slopes held firm by groves of hemlock. Beside the gulley, running right by its rim, an old wood-road ascends the mountain. It is overgrown now with sumach and maple-saplings, but it is still passable. Walking up it, a watcher has constantly a view down into the ever-deepening ravine that drops away at the side of the path. It is a strange place into which to look down. It is a place of tremendous oaks, and also of tangled bushes and creepers; and in the bottom of the ravine there runs a little swamp-born stream of water, fed here and there by springs. Into this ravine no person ever goes. The stream of water that flows in this chasm, the trees that grow there, the ferny clearings . . . these, by an iron-bound understanding, are to be touched by no human presence. They belong to the mink, to crossbills, to frogs, to whatever beast may like to come; but not to us.

Halfway up the slope of the hill, along the wood-road, at a place where the ravine is some hundred-odd feet deep, I once fashioned at the very edge of it a lookout-place: a little clearing, half-hidden among hemlocks, with a stout chair to sit on. It is to that place that I have made my way for many years, now, on Christmas nights, to sit bundled in a great coat and stare down into the hushed and snow-whitened theatre below.

The thus-kept vigil starts, I find, with long, long thoughts. In the silence and coldness and stillness of the woods-night, the electric-lit and oil-burnered civilization of our time slips quickly out of mind. Thoughts grow longer, deeper, and a simpler kind of fundamentals occupies them. A man's mind turns to the snow, perhaps, to this omnipresent whiteness glimmering and glittering under the stars, and he is moved to think of it with an awareness of its beauty, and its meaning. It is the snows that blanket and protect these vegetations, and will render them fresh and green in spring. It is this snow that the beasts can eat, when the open water freezes. It was the snows on Lebanon that fed the springs, and the valleys were made fertile, and an ancient people recognized the fact and understood. Disregarding all the wild apocalyptical things—the visions and miracles and burning bushes and the rest—there is much good simple husbandry and earth-closeness in Christendom's book of books.

And now the mind may take a new

In the winter silence, brown-plumed phragmites stand against the ice-bound creek.

turn for its rambling: a thinking about trees, perhaps, started by the black immensity of this pungent hemlock, looming enormous against the whiteness of the snow. Trees? There comes to mind a statistic, embedded in memory: of every million of our wooded acres, we have allowed, through carelessness, some two thousand acres annually to go up in flames. Is there not, in the Bible, a tale about a prodigal? Is it not set down, in Deuteronomy, that "the tree is man's life"? The mind moves on.

Now, presently, a curious thing occurs. The thinking mind grows slower and slower in its cerebrations; it begins to idle; in a little while it has begun to drowse. Under the spell of snow and stars, under the magic of this cold clean balsamed air, there is awakened in the watcher a kind of percipience that is infinitely older than the rational intellect. Man has been thinking for only a little while, a mere few minutes of geological time. Before that he possessed, in kinship with his fellow animals, a different and deeper kind of knowing. It still sleeps in him, and offers its monitions and its guiding. "By Pride of Intellect did man's great Fall occur." Now, in this hour of the Christmas midnight, the watcher finds himself restored, so to speak, to his aboriginal oneness with the animals—to his oneness, indeed, with trees and snow and sky and stars and the whole flowing totality of that Creation of which he is one particle. The arrogance of intellect, the personal pride, the ego which inveterately loves to try to thwart and cross the current of nature, and is everlastingly made miserable by the trying . . . these are now stilled. The man has lapsed into primal acquiescence with the nature of things. He has become as a fox, or as a bittersweet-berry, or as a box-tortoise that slumbers underneath the frozen earth in obedience to the obscure behest that instructed it in autumn. There stir in him now, and wake, his ancient instincts, his feelings and awarenesses that are older than mind, his deep-knowings and pre-conscious certainties that are lodged in the depths of his spirit for his guidance, as they are likewise lodged in a wolf. He finds himself "thinking" with his skin and his nostrils and his eyes and ears, as much as with his mind. He is not now the prisoner of one exalted faculty, the intellect. He has become whole. He has, in a profound and hardly describable way, come home.

In the hour of this spell, two things

Allan D. Cruickshank



particularly are made known to him. He is made to know how tremendous are the innate wisdoms that lie below the level of the thinking mind. He can almost "feel" the presence of a cottontail, before he can see it or hear it, even as a vixen, with her young trotting behind her, appears to "feel" the fact when one of them steps out of line or halts. He "knows," without knowing how he knows, a great multitude of forest-things. He can feel a prickle at the nape of his neck when a horned owl hoots. It is the vestige of what was once a rising of hackles, and it comes from the depths of him. All these slumbering submental knowings and reactions and awarenesses . . . how immensely more sharp and vivid must they be in the animals, in whom these primal wisdoms have never been supplemented or overlaid by the faculty of reflective and analytical mind.

And how preposterous is the argument about "instinct versus intelligence," and the hot disputes over "nature-faking." When a pair of foxes or coyotes run in relays to exhaust the hounds, shall it be called intelligence or instinct? When muskrats team together to free one of their fellows from a trap, shall it or shall it not be called thinking? The terms of the argument are absurd and arbitrary. The animals, quite evidently, do not "think," in the human meaning of that word. They are not deliberative logicians. But they possess, in an accurate sense of the term, intuition: which is to say instincts, subtle sensitivities, pre-conscious insights, spontaneous and impulsive knowings in their blood, which serve them truly as a wisdom.

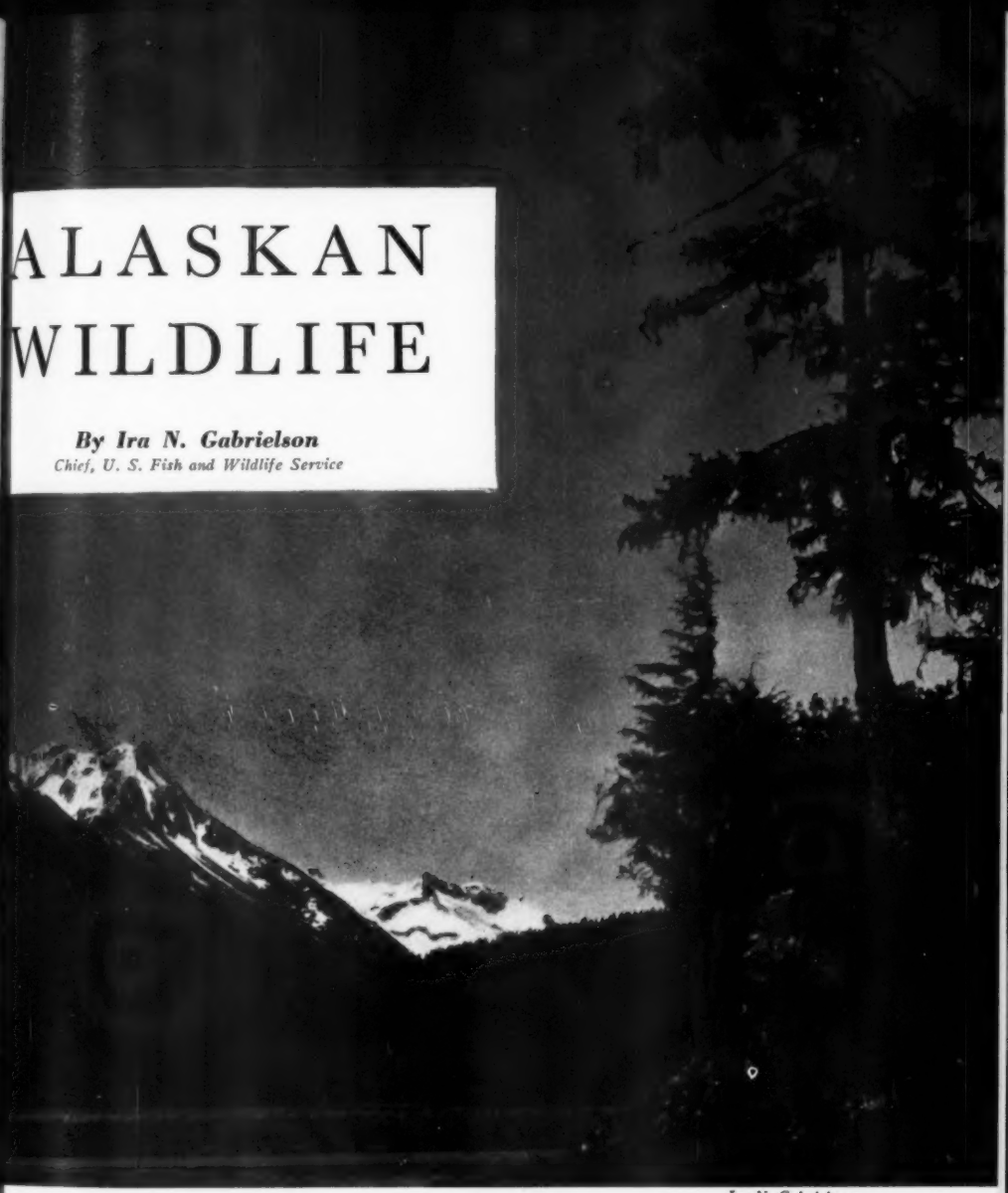
A great naturalist has put it well: "They think without knowing that they think." They are innerly moved by That Which also makes a hemlock tree to grow, and snow to blanket the forest-floor, and a hunted deer to make elusive side-leaps from the trail. Their wisdom is the wisdom of a sprig of sassafras, thrusting toward the sun, or the wisdom of a climbing liana which will not attach itself to any branch that is dead and thus potentially unsafe. A fox or a tree or a vine, or the inmost heart of man if that heart be held receptively open . . . all are similarly instructed.

In the midnight of Christmas, alone in the woods, the watcher cannot but feel a Presence there. A great Life, illimitable and not to be defined, broods over this snow-whitened and hemlock-pungent solitude. It does not make much difference what the man may call it. He may call it God, or he may call it something evasive and pseudo-scientific like The Life-Force, or he may just use the catch-all term and call it Nature, with a capital. The chances are he will not call it anything, in such a place and hour. He will be content to *feel* it. Relaxed, as he is, into a simple and humble oneness with the whole of creaturely existence, he need not trouble to give a name to the inrupting certainty that he experiences. Let it just lodge in him, even as, under the special name and aspect of heliotropism, it lodges in a climbing wayside weed.

Well, I had meant to say much more about the things to be seen on a Christmas night excursion: the deer-tracks, the sleeping tree-sparrows, the frisking cottontails, and many another matter. And now I find that, having started off up that tote-road which parallels the ravine, I have been talking mostly about what happens to a man's own heart. Perhaps, after all, that is proper enough. For Christmas, if it is to be anything more than the hollowest of celebrations, must be a celebration in the spirit.

ALASKAN WILDLIFE

By Ira N. Gabrielson
Chief, U. S. Fish and Wildlife Service



Ira N. Gabrielson

ALASKA is the last great reservoir of big game in North America under the American flag. There are excellent herds of moose, mountain sheep, caribou, goats, deer and great numbers of bears. There are great numbers of moose and mountain sheep only because Alaska provides a vast suitable living space for them. Too many citizens, particularly those with sportsmen's instincts, have the impression that Alaska is a land teem-

ing with such big game. Some of them believe that anywhere in that vast country big game is present in great numbers, but that is not true.

Despite the fact that Alaska has an estimated moose population exceeding 20,000 animals, and that there are 3,000 to 4,000 of these great antlered beasts on the Kenai Peninsula alone, you can search diligently through many thousands of square miles without seeing one moose. You can travel for days either in an airplane or by any other means of transportation without seeing even one of these noble animals. The same thing is true of sheep, goats and other big game species. You have to visit them in their natural habitats if you want a glimpse of them.

Nor are the great bird colonies widespread. Rather are they restricted to specific areas where the conditions suitable for their existence occur. The Territory of Alaska is comparatively barren of small bird life. You can, of course, see great colonies of sea birds on the rocky islands and at various points along the coast. It is also true that there are great numbers of nesting geese and ducks in certain areas in Alaska, but bird life—particularly small bird life—is much more scarce both as to total number of species and as to numbers of individuals in a given locality, than in any comparable area in the States.

Upon a little reflection the reasons will become obvious. Alaska is an Arctic and sub-Arctic region and, with the exception of a narrow strip along the coast, it is a land of scant vegetation. The interior forests are made up largely of scattered stands of spruce, birch, alder and willow, and do not even resemble the forests we know in the States.

In the tundra country where no trees grow, there is a solid vegetative

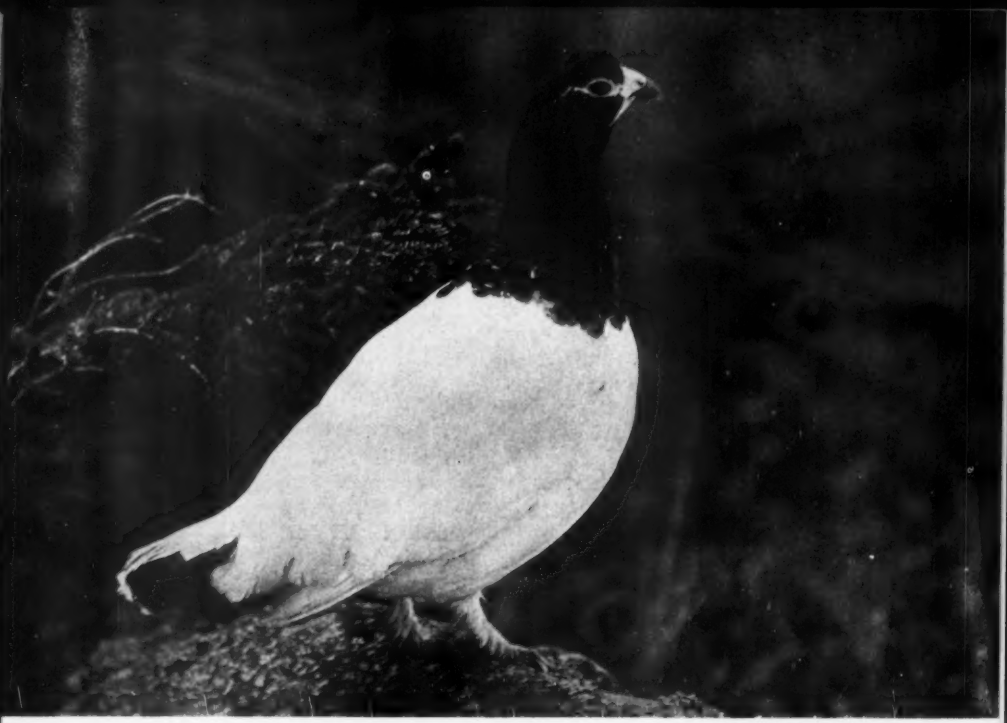
Willow ptarmigan (pronounced without the first letter), like the others in its group, has feathered feet for life in Alaska, and many plumages. This is a male in spring, wearing a bright scarlet comb. In winter he would be white, in summer, brown—excellently camouflaged in both plumages against tundra and snow.

So similar is the rock ptarmigan in summer dress that it cannot be distinguished in the field. A third species, white-tailed ptarmigan, is the only one which breeds in the United States and is found in western mountains as far south as New Mexico.

cover made up of various mosses, lichens, grasses and perennial plants. All of these grow slowly, reproduce themselves slowly and it may take as much as a hundred years to replace a destroyed tundra vegetative complex. Experiments and field studies undertaken by the Fish and Wildlife Service during recent years indicate that if such tundra vegetation is destroyed by fire, overgrazing or by any other means, it replaces itself as slowly as does a destroyed forest.

The growing season is short, and while vegetative growth is rapid for that short period, the total amount of food produced and available to wildlife is rather limited.

This limited production of browse is a limiting factor on the abundance of game mammals. Here, as anywhere, all forms of life are dependent upon the total food production in the poorest rather than in the best years. Similarly, the bird population is limited by the productivity of seed- and fruit-bearing plants, by the quantity of insects available during the short summer seasons, or by the amount of aquatic life available to feed water-loving birds. Only for those birds and mammals that feed upon aquatic species, do the available food supplies permit great populations or great concentrations. Similarly, fur seals, hair seals and sea lions are present in great numbers only because of the abundant fare present in the sea.



Arthur A. Allen

The popular misunderstanding concerning the super-abundance of Alaskan wildlife probably originated in various ways. In the first place, it is a frontier country, and one that has provided the locale for innumerable famous stories of big game hunting. Each new narrative confirms the naive and erroneous impression in the minds of those who have similar ambitions, but no first-hand knowledge or experience. The novices believe that if only they could go to Alaska, they would have no difficulty in getting a "bag limit" of almost any species that they desire to hunt. Perhaps the accounts that have been written of the great bird colonies—and I myself have been guilty of writing rather glowing accounts of the enormous abundance of these birds—help to foster the illusion that Alaska is a land that is everywhere teeming with life. Whatever the cause of these erroneous impressions, they exist and directly influence the attitude and behavior of new human populations that visit the Territory.

With these facts as a background, it is easy to understand why the tremendous influx of people into Alaska, both civilian and military, that has been occasioned by this war, has had a profound effect upon the resident wildlife and upon its future status. There are stories of wanton killing, unfortunately based upon fact. Like all "stories" they are highly exaggerated and distorted as to detail.

I was in Alaska during the fall of 1941 and again spent two months there in the summer and early fall of 1943. As a result of these trips, and discussions with our own wardens and other personnel, with civilians and with Army officers, I think that I am qualified to present a fairly comprehensive picture of what is actually happening to the wildlife. Not only is the influx of large numbers of peo-



Shore birds like these phalaropes and dowitchers, find ample nesting room in our "last frontier," congregate in great numbers in migration.

Lorene S

ple into Alaska affecting the wildlife, but other attendant developments are transforming the natural and favorable conditions of existence of those resources. Many miles of new roads have opened up new country, access to which hitherto has been more or less difficult. Dozens of new landing fields have been built either by civilian or military authorities. These two facts alone have made it possible for the increased number of people to get into territories which have previously been inaccessible and have made almost inevitable the decimation of game supplies in certain localities. The construction of highways and landing fields, rather than the actual killing by the people who are stationed or working there temporarily, will create long-time problems of administration of Alaskan wildlife if it is to be preserved as a useful and necessary resource.

So far as the actual killing is concerned, moose and certain other forms have decreased around certain airfields and Army posts, and fish supplies in certain streams have been depleted. Up to the present time, however, the total adverse effect on the wildlife population in Alaska as a whole has not become serious. While most of the stories concerning wanton killing are attributed to military personnel, the information received from our own agents indicates that the civilians working for contractors have been, on the whole, more destructive of the wildlife than have the armed forces. Army officers have been quite cooperative. At the present time, at most of the posts, the Army and the Navy are endeavoring to keep the killing of game under reasonable control. The attitude of the officers generally is good, although I can say frankly that there are some who are indifferent or uncooperative. In most posts an officer has been appointed as a game conservation officer who works directly with personnel of the Alaska Game Commission not only in investigating reports of illegal killing by Army personnel, but also in helping to educate the Army personnel in appreciating the value of the Alaskan wildlife resources and in the need for maintaining them. It cannot be denied that occasionally there are very bad cases of wanton destruction.



Such incidents, are, however, more prevalent among civilians than among members of the armed forces. We do believe that, in general, the Army officers are making every reasonable effort to minimize the actual and potential injurious effects of increased exploitation on wildlife.

No one can yet predict what total permanent effect on Alaska's natural living resources may result from the doubling of human population and the creation of new roads, landing fields and settlements. It is certain that the same new landing fields will continue to be used after the war for commercial purposes. Certainly, some of the people, both civilian and military, who have seen Alaska for the first time are going to be so attracted to it that they will endeavor to become permanent residents after the war. Uncertain as the magnitude of this movement of people may be, it is going to affect wildlife administration. There is a chance that the present frontier Alaska will gradually become more completely developed, urbanized and exploited. If that occurs the people can no longer depend, as many of the Eskimos and Indians do at the present time, entirely upon the fish,



Ira N. Gabrielson

game, and fur for their existence. There are not enough of such supplies to care for any very great increase in population over that which Alaska has supported in the past.

How are we going to meet this problem? I have no panacea of any kind to offer. We have created some new refuges to protect certain game herds which were threatened with decimation. We probably will have to create others to prevent destruction of essential wildlife habitats. We hope to establish such refuges before important species of wildlife are destroyed rather than await that destruction and then go through the long, painful process of restoration that has been necessary in the States.

With this in mind, a large block of land in the Kenai Peninsula was withdrawn for the protection of the Kenai moose herd. A considerable part of Kodiak Island was similarly withdrawn to furnish protection for the environment that makes it possible for the great bears to exist on that Island. Undoubtedly we will find that there are other places which our men are now surveying and studying with the idea of protecting nucleus herds and the environment that produces them. It is possible that some of the duck-nesting areas will need to be set aside, more to prevent their destruction than to protect the individual birds that are resident there. My own conviction is that we do not want to create refuges involving large areas promiscuously and without a definite program. If the country is to become more heavily settled, places for the people to live and make their livelihood will be necessary, and our wildlife program should fit into the constantly changing status that is inevitable in a developing territory.

Needless to say, we will need a greatly increased staff of wardens to patrol the country. During previous years fourteen men have been able to do a fair job. With the increase of population and the scattering of settlers out into areas which previously

Tiny Auk Lake lies below Mendenhall Glacier, Juneau, Alaska. Here horned grebes, which winter in the United States, and Arctic terns, whose extended migrations take them to the Antarctic in winter, breed unmolested. Crossbills are almost always to be found in this coniferous forest belt where they pry open cones and extract the seeds with their specialized bills. Higher still, ptarmigan live on the side of this great glacier.

were uninhabited, those fourteen men cannot begin to do adequate work. We must have more men and this means more appropriations at a time when the tax load is going to be heavier than that which any previous generation of Americans has yet been called on to bear. With this increased staff we must have more than our present complement of five airplanes and more funds to operate them.

There is no question but that the airplane is the coming primary method of transportation in Alaska as well as in the other northern lands of the world. It is a rapid method of covering the vast distances which extend around the pole, and also a method of travel and transport which does not present the difficulties of development that have attended the construction of highways and railroads in the past.

An increased human population in Alaska means, in the long run, reduced hunting seasons and bag limits, more rigorous enforcement of regulations and other control measures, just as have come about in the States. Alaska up to the present has been a pioneer land where fish, game and fur, as in the days of the early North American pioneers, were the chief means of livelihood. Today the fisheries are the principal, and fur the third largest, source of revenue in Alaska. Without the salmon fisheries many inhabitants of the coastal towns would have no means of livelihood, and without the fur business most of the small inland towns would vanish. We can look for an increased pressure on these resources with an increased population. Eventually such pressure must lead to the development of other means of livelihood or the eventual destruction of the natural biological resources. Naturally the latter solution does not interest any of us who are working in the field of conservation. We hope that other resources can be developed to provide means of livelihood other than those dependent directly upon the wildlife.

I find that the educational programs carried on in Alaska by the personnel of the Service have achieved excellent results. They have used local motion pictures with good effect, and have had the generous cooperation of the magazines and newspapers published in the territory, which have been carrying educational stories. This program of public education will have to be intensified and perhaps changed to meet existing conditions.

These are the only possible means of planning future conservation within our reach at the present time. There is nothing startling in the manner in which a new program must rely upon the tools which we have found to be successful in dealing with these problems in other places. In order to place the management of the wildlife resources on a permanent basis of self-perpetuation it will be necessary to change the concepts of the people of Alaska, of most of the people who are going to Alaska, regarding the extent to which wildlife may be utilized. Only by successfully changing the popular viewpoint may we maintain Alaska as the source of the most valuable salmon fishery in the world, as the home of the greatest bird colonies in the country, and as the last reservoir of the great game herds to be found under the American flag.



WINTERING *with a Gray Squirrel*

By Paul D. Harwood

Photographs by Allan D. Cruickshank

I WAS late getting home from work that evening—a circumstance not unusual for an investigator, even though a civil servant employed at the Beltsville (Maryland) Research Center. For one day I had seen enough of living things, of worms, of Protozoa and of their hosts, but friends who had found a sick squirrel in their front yard, requested assistance. They dared not touch the suffering little beast because of vague though very real fears of tularemia. Somewhat wearily I drove our Ford northeastward through the traffic of U. S. 1 to suburban Hollywood, Md.

Mrs. B. answered the doorbell quickly, and guided me to a young squirrel lying by the walk. It was—if one may borrow the term from ornithology—a nestling gray squirrel so newly born that its eyes were sealed shut, and its fur was so short that it appeared disordered. The relatively large head lay between fore paws which seemed useful, but the scraggly tail and hind legs were stretched limply behind. Obviously, the infant did not belong where he was found, but the whereabouts of its home could not be guessed as the second-growth white oaks seemed too small to harbor a cavity of suitable size and no large leafy nests such as gray squirrels often make were readily discoverable. For the first time in my presence the squirrel screamed; no milder term can describe the piercing sound. He had

raised his head, and his whole tiny body was taut with effort.

"Isn't it dreadful!" Mrs. B. exclaimed. "That is why we found him, but we didn't touch him because we were afraid he might have some disease. He *is* sick, isn't he?"

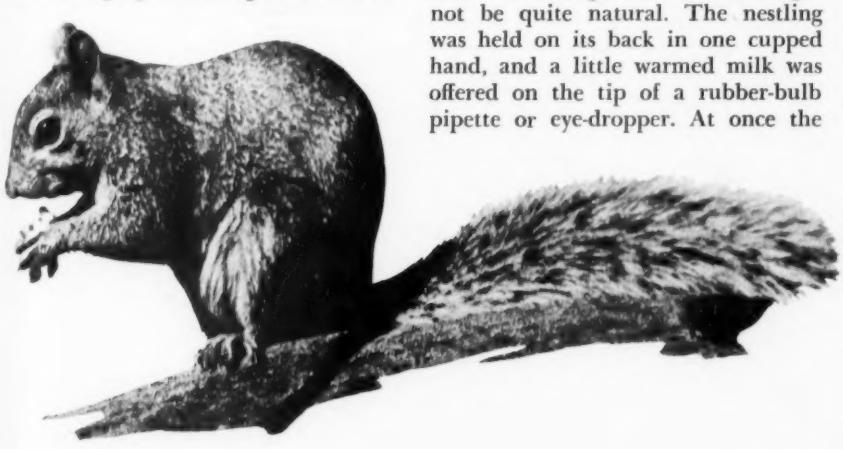
Mrs. B. is small and dark, and her voice was soft with sympathy as becomes a woman in the presence of suffering. However, Dr. B. strolled out of the house exhibiting the detached philosophical air that we males like to affect on many occasions.

"He does not appear sick," I said, taking the squirrel in my hands, "but he does act as though he were very hungry."

The expenditure of effort which accompanied each scream indicated that the tiny rodent was not yet weak or debilitated. As weakness is usually a prominent symptom of infectious disease, that type of illness seemed ruled out. Instead of complaining feebly, as a sick nestling might do, the squirrel protested vigorously at each hunger pain.

Perhaps the mother had dropped her baby while moving, and for some reason had failed to recover him, or perhaps she had met some mishap while foraging, and hunger had forced the blind infant from the nest. Speculation was useless, for it was obvious that the suckling must either die or be dependent upon human intervention. Mrs. B. was eager but fearful of her inexperience. Wouldn't Mrs. Harwood undertake the task? The vision of our tiny bungalow already nearly bursting with babies and associated paraphenalia made me hesitate, but a phone call resolved the difficulty. Mrs. Harwood thought it would be fun to try to raise the squirrel. We all started for College Park in the gathering dusk.

Everyone agreed that the suckling must be fed at once, but no one could suggest exactly the proper food, or the precise method of administration. My zoological library, which seemed so cumbersome at moving time, was wholly worthless. Robert Snedigar's new and excellent little book ("Our Native Small Animals") which attracted our attention before the squirrel was grown was yet unknown to us. Mrs. Harwood remembered that the milk of small mammals was generally more concentrated than that of larger beasts. Therefore, she warmed a little evaporated milk and set to work, knowing that a hungry baby must be fed, even though the formula might not be quite natural. The nestling was held on its back in one cupped hand, and a little warmed milk was offered on the tip of a rubber-bulb pipette or eye-dropper. At once the



animal recognized the warm fluid as nutriment, and in eager search of complete fulfillment of his nursing instinct, sought its natural source, the mother's teat. But the nursing instinct never comprehended that mother's milk might be disgorged by the fire-polished, hard tip of a glass pipette. Instead, it taught of soft and yielding mammilla that respond to little thrusts of the nursling's head and fore paws. As blind instinct demanded, our squirrel sought to stimulate the flow of milk after the usual manner, but his efforts were worse than wasted. Contact with the hard tip of the pipette represented harsh frustration for the thrusting nose and for the searching fore paws. Thus irritated, the struggles of the suckling became vigorous, and resulted in spilling of the milk upon its fur. To restrain its useless efforts, the squirrel was wrapped in a handkerchief before the feeding was continued.

Fabre, the incomparable observer and master artist, found that instinct among the insects was immutable and intractable to experience. No disaster, however often it befell, could halt or change the invertebrate's reaction to a stimulus, but the infant squirrel possessed the intelligence to override his instincts quickly. Within two days, he seized the pipette in his fore paws and sucked vigorously at the tip. The responsive teat, turgid with milk, was soon forgotten; in its place the sanitary glass pipette—a disinfected cornucopia—was accepted eagerly and handled competently. The suckling drew so vigorously on the glass tube that the rubber-bulb was collapsed and the milk soon exhausted. He exhibited natural infantile impatience while the supply was replenished from a convenient saucer. Such prompt adjustment of behavior to meet a new and unnatural situation cannot be classed



as instinctive. It is a vague and embryonic exercise of the mammal's ability to adjust advantageously toward a newly encountered situation; it is a budding intelligence.

The suckling never again became hungry enough to scream for food as on the evening he was found. Although he thrived on his diet of evaporated milk, conscientiously offered by Mrs. Harwood every two hours throughout the twenty-four, he developed a persistent diarrhoea which we could not explain. His stools were searched microscopically for coccidia, those ubiquitous and often disastrous parasites of lower animals, but only fat droplets were found. Perhaps his diet contained too great a percentage of fat. Possibly sweetened, fresh milk would more closely approximate the natural secretion of a mother squirrel.

When the squirrel opened his eyes after several days, and began to crawl

about, the nest was transferred from a small cardboard box to an empty 10-gallon aquarium. Within a month it was apparent that the gray squirrel was becoming too large and active to have the freedom of our 4-room cottage. He was confined in a large, outdoor cage with a nest-box built into one corner. Newspapers were furnished for nesting material. As the weather was mild, the squirrel used his nest-box, but he showed no interest whatever in the newspapers. Mrs. Harwood was worried lest he suffer from the cold when winter came to College Park.

The first cold of the winter came suddenly. A north wind drove gray clouds across the sky all day, and hour by hour the temperature fell. Not long after sunset the wind dropped, and the cold pressed into the Anacostia flats where our little cottage lay. Mrs. Harwood remarked that the squirrel was a tiny creature to be alone outdoors on such a night.

The house was thoroughly chilled by the settling cold of the still night when Mrs. Harwood got out of bed. I supposed she wanted only to make sure that her babies, aged one and three, were properly covered, but she also had in mind the orphan in the back yard. She was back after a few minutes remarking that it was very cold, but that the squirrel knew how to make his own nest when necessary.

In the morning, when I opened the hinged door to the nest-box, only packed and shredded papers were visible. The entrance hole represented the only break in the paper wall, consequently, the only break in the insulation. For balmy after balmy day the squirrel had shown no interest in nest building, then in a single night he had shredded the paper and built himself the warmest of nests. His teeth and fore feet must have worked busily for a time, but they had worked without instruction and apparently without error, so sure is instinct. The flat sheets of paper had served as well as leaves, which they resembled superficially, and the nest box had served as well as a natural cavity. The tiny air spaces trapped by the shredded paper made a nest sufficiently warm to protect the squirrel against the coldest night of a Maryland winter.

Often in the long winter evenings we brought the squirrel into the house for play. Sarah, our one-year-old, was much interested in the scampering, furry creature. She would stand in the corner of her crib, peeking around the bedroom doorjamb to watch him run, but when he climbed her crib she was frightened by his quick dashes. After that experience she preferred to watch him from the more certain protection of a parent's lap.

If Sarah was interested, Ann, aged three years, was enraptured. First she must pet him, which was allowed, then she wanted to hold him, and we were doubtful, but she was most insistent. We explained carefully that she must not squeeze the squirrel or he would bite her, and she must not under any circumstances pull his tail, because squirrel's tails are easily pulled off. Then we suppressed our misgivings and placed the squirrel in her lap. She was enthralled for approximately as long a time as a three-year-old may be held in joyous thralldom. Soon she was pursuing him about the house. The squirrel seemed to enjoy the chase, though sometimes he hid under the cedar chest and quietly consumed a peanut.

Snedigar states that squirrels are nervous and need protection against excitement in captivity. Yet our pet seemed to thrive in spite of Ann's persistent and strenuous idolatry. His ability to enjoy our restless three-year-

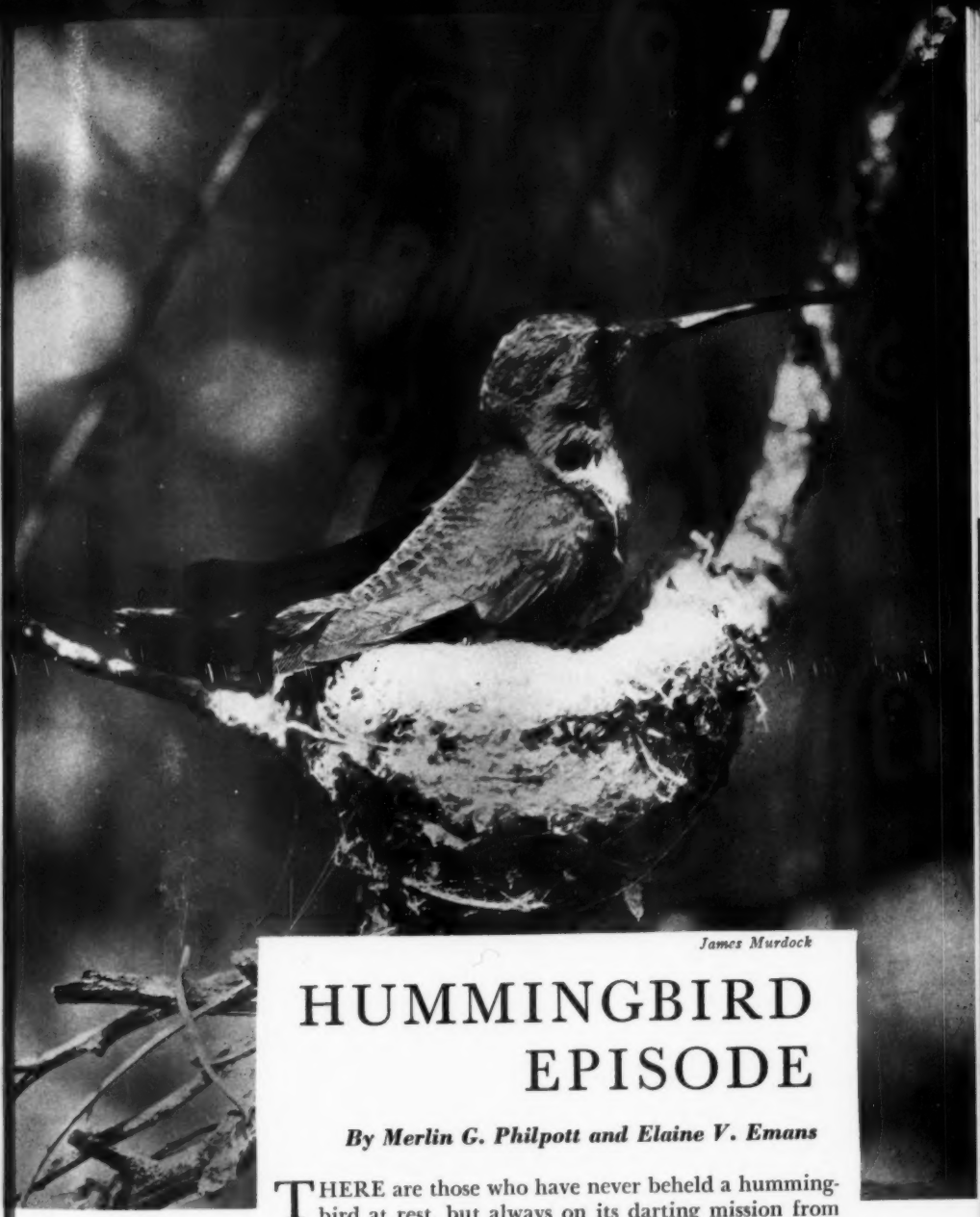
old appeared much greater than either Mrs. Harwood's or my own. Often in the chase Ann seized the squirrel, just in front of the pelvis, holding him at arm's length and shrieking with laughter at the struggles of the squealing rodent. Then her mother and I would scramble from our chairs with visions of baby fingers slashed by the frightened rodent's teeth. How earnestly we called to Ann to drop him. However, the only aftermath was a serious lecture, telling Ann she must not catch the squirrel in such a manner. She must pet him nicely and carry him thus and so. She always promised earnestly, but as soon as we had resumed our chairs the chase was on again.

For all our worries, the squirrel never really bit anyone, although when very young he nipped our fingers a little sometimes, if we held tightly to a nut he wanted. In return we snapped him lightly with a finger. Before long the captive nut became a game which the squirrel loved to play. He would root with his nose and pry with all four feet, seeking to loosen a nut for which he had no real use. Once possession was won, the nut was soon abandoned openly or buried quickly under the edge of the carpet. Through all this teasing, the squirrel maintained the greatest respect for the integrity of our epidermis.

Our pet was always ready for a romp in the house. He never tired of exploring each room in turn, and he soon developed a special interest in the pantry. He was very fond of bananas to which he would help himself at every opportunity. When thirsty he drank from the water pitcher by clasping the rim with his hind feet and lowering his nose to the level of the water. If only a quarter-inch of water remained in the pitcher, he was forced to extend himself full length downward, but he never lost his grip on the smooth rim nor for a moment lost his balance. When the house was thoroughly inspected, he would climb the curtains, perching on the curtain-rod, then leaping on our backs with all of his sharp claws extended for an eighteen-point landing. If we were reading, he might perch quietly on someone's head—he usually chose the highest perch for quiet observation of his surroundings. Yet he preferred action; for many minutes he would sit on Mrs. Harwood's knee, using his front paws to box with her fore finger.

In the first warm days of spring the squirrel was released to run about the yard whenever we were outside to frighten off the numerous free-ranging dogs of the neighborhood. He remained tame enough in his new freedom, but as soon as he suspected we wished to return him to his cage, he sought to escape. We learned to drop him inside and to shut the cage door very quickly lest he dash through the closing crack and race for the front porch. Once he had slipped through the lattice work under the porch, he was beyond our reach.

Before the spring had advanced very far, it was apparent that sexual impulses were stirring. Consequently, we wished to place our squirrel where he might find a mate. He was released in one of the oak woodlots of the Beltsville Research Center. We did not see him again, but food left near the point of release was consumed for a time, then no longer touched. Our squirrel, we hope, has learned the ways of the wild, has found a mate, and has become the father of other baby squirrels that are no less entrancing than he. He has forgotten us, as he should. But the Harwood household shall always be grateful to the little gray squirrel who shared his life with us for one memorable winter.



James Murdock

HUMMINGBIRD EPISODE

By Merlin G. Philpott and Elaine V. Emans

THERE are those who have never beheld a hummingbird at rest, but always on its darting mission from flower to flower. Will they believe, we have been asking each other, what we have seen with good eyes up in the Little Canyon: the community bathing of four species of hummingbirds? Will they say we could not have come so amazingly close to the mother black-chin on her minia-

ture nest? But let them remember that often truth *is* stranger than the most delightful fantasy. And that we *do not exaggerate.*

Around the year, this little Canyon in the Beverly Hills district of Los Angeles, Calif., is a joy to the heart of any naturalist—except, of course, the arm-chair one! We go about a mile into the hills beyond a certain small park, and there follow a little-used, narrow, rough dirt road up into the canyon for two or three miles. It is wild, as nature made it, with no houses in sight. Along this road we come upon hares, coyotes, perhaps a road-runner, and even a lithe, tawny bobcat. But this is about hummers, so let us see what conditions and vegetation attract them.

The sides of the canyon are sloping, and covered with a close growth. At the bottom is a stream wash, for the most part dry, about eight feet deep and fifteen or twenty feet wide in places. Here grow black walnut, oak, sycamore and other trees from twenty to forty feet in height.

But the shrubbery that blooms roundabout! In May, as the wild lilacs finish their display, the showy white blooms of the chamise hold forth. We pass through a thicket of tree tobacco, about ten feet high, which is in flower nearly all year, and see elders in full bloom, their large flat-topped clusters creamy white. There are baby-blue-eyes and the great blue flowers of the canyon



James Murdock

This mother black-chin with a wary eye on the photographer could not be distinguished in the field from female Costa's though the males are very different. By the time they are on their own the short bills of these youngsters will be full grown for a lifetime of flower-probing, and small insect-catching.

lupine. There are dark-and-yellow-centered sunflowers in profusion and countless yellow "bush-monkey-flowers." Here and there all the pink blossoms of the prickly phlox, and up on the hillsides wild buckwheat and black sage in full bloom.

With sycamores plentiful and this abundance of flowers, and with a bit of water here and there, is it any wonder the hummingbirds consider this place a particular paradise?

Since the ruby-throated hummingbird is the only one of the family resident east of the Mississippi, a few words about the black-chin are in order. Not that mere language can do its exquisite coloring justice, nor can even a careful painting; for it is the turning and darting of the little jewel which heightens its iridescence. The ruby-throat and black-chin are approximately the same size, and the colorings on their backs are similar. Just below the little black area under the bill of the latter is a color which ranges, according to the light, from a reddish to a very rich deep purple. It is sometimes amethyst. Beneath this is a well-defined little white collar, which is not always visible in illustrations. However, it is one of the best means by which he is identified, and gives him a rather smart appearance. In fact the male black-chin is quite as lovely as any of the other hummingbirds.

The exciting little adventure which might be entitled *Finding the Black-chin's Nest* took place about the middle of June. In a way it came about by accident. We had gone up to the canyon on a Sunday, and presently met a couple, hiking, a young man and a girl. We soon became acquainted, as explorers of the hills and woods will. We talked about hummingbirds and their nests, as we stood under a fair-sized sycamore which grew out of the bottom of the wash. We were examining the leaves of the sycamore when along came a female black-chin, buzzing quite near. She approached and darted away several times before finally lighting in a small black walnut nearby. This tree was young and slender, and the branches flexible. The young man had a camera, and was getting it ready for a shot at her within four or five feet, when suddenly we discovered that she had come to light upon *a nest!* Before the picture was taken, she flew, and we had an opportunity to see the two tiny white eggs. They were the same size and shape at both ends.

Almost immediatley she came back, and altogether we got six shots of her on the nest at different times. This may sound difficult to believe, but at one time the camera was not over thirty inches from Lady Black-chin. Who can say how her little heart was pounding?

The nest itself seemed the work of fairies. It was constructed *entirely* of leaf down—no lichens, shredded weeds, spider silk or feathers in this. About an inch and a half across, the top edge rolled over toward the inside, so that the cup appeared no wider than an inch. The little branch it saddled was perhaps a half inch thick at the base, and swayed with every puff of wind. The nest was probably the most neat, compact, and marvelous bit of workmanship we shall ever see.

Then, just to make *sure* we hadn't dreamed that human beings actually could come within that distance of a wild hummingbird nesting, we went back a morning soon afterward. At first, the bird flew when we approached within forty feet of the nest. But with infinite patience, approaching an inch at a time, we came within about four feet of her, and then

leaned forward, slowly. Her little eyes winked, but otherwise she was as still as a statue. Her long slender bill might have been a dead twig! There was the question, then, of trying to go still nearer the little black-chin, or to back away. We retreated, and she didn't move, though her relief must have been indescribable.

Just a few days later, on June 20, we found the little ones hatched: two naked and blind babies with so little life that we had to look closely to perceive it. But their mother knew what to do, and when.

On June 21, they seemed to have made no progress—or were we too impatient? They did not eat, they made no sound, they could scarcely move at all, to say nothing of lifting their heads.

It might be said, here, that the male was never observed to come near the nest. This cannot be put down entirely to lack of paternal obligation, because the female, from time to time, would attack and drive off other birds much larger than herself. And she may not have welcomed friend hubby.

Sunday, June 28, we found the twins bulging the nest, but still blind and quite inactive. Unlike other birds, they seemed not to clamor for food—in fact the little mother had practically to force their bills open and push her own down their throats to their stomachs. Baby hummers are fed by regurgitation.

Four days later there were signs of definite progress—the youngsters were growing feathers, and their eyes were open. The birds were so large it seemed impossible that the nest, stretched and out of shape, could contain them until they were ready to fly.

When we approached the nest on July 9, approximately three weeks from the time of hatching, we were startled to have the two young birds fly out with explosively loud whirrings. During the next two hours they didn't go back, but sat about as the young of other birds will do, somewhat hunched. It is extremely interesting that they could make their wings go with that wondrous speed of their elders, even for short distances!

If our hummingbird experiences had ended right there, we certainly should have felt we "had seen a thing." But we were to be even more amazed and delighted before July had run its course.

At one point in the Little Canyon, a seven-foot waterfall drops into a clear pool not more than eighteen inches deep. Now the upper three feet of the falls are on a slant, a sort of miniature rapids, dividing into several little rills which cascade in small grooves and over tiny steps three or four inches high. We took up a position seven or eight feet away, near small willows, elder, honeysuckle, tobacco plant and other shrubs. At the base of a decomposed granite wall (on the other side of the falls) a trickle of water flows from a spring. This forms small cups of water, about deep enough for a little bird to submerge itself completely.

On this particular morning we had gone into the hills very, very early, when it was scarcely light, suspecting that that was the time to see the most. No sooner had we stopped the car than hummingbirds began gathering all around! In addition to the black-chins, with which we felt the best acquainted, there were three other distinct species, the Anna's, the Allen's and the Costa's.

The Anna's is the largest of the four. Its iridescent crown and lengthened feathers of the neck sometimes appear nearly black, sometimes bright red, with all the lovely range of color

between. The Anna's, by the way, attempts to sing.

The Allen's, the smallest of the hummers we have seen, not only makes the most noise but probably the best show when it is flying. Its tail is very conspicuous and beautiful. Briefly, the bird is a highly pleasing combination of shining rufous, olive-green, ruby, black, and yellow with a touch of white.

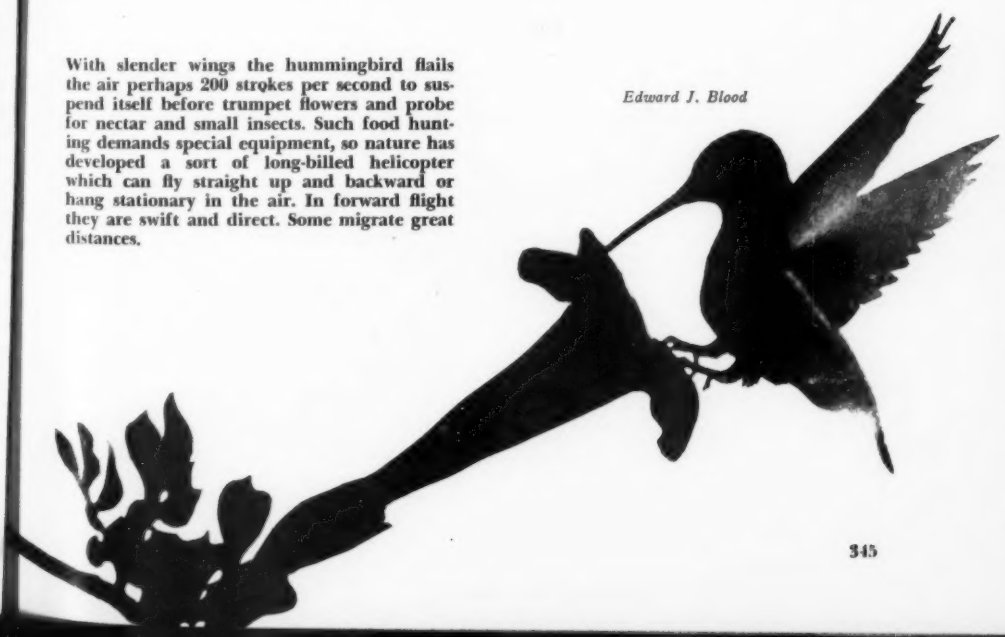
The little birds buzzed about the car, flying right up to the windows. Convinced that we meant no harm, they would chase each other about in circles, and then bathe in the little ripples above the waterfall, and in the tiny pools. And by "little birds" we do not mean five or six. There were no less than twenty-five at a time! And can you imagine what an enchanting sight that was—the animated jewels settling into the little grooves, sticking their heads in the water and letting it flow over them from the steps above? They kept flapping their wings and spreading their tails. And then, when each was satisfied that his ablutions were complete, he would retire to a near bush and smooth out his ruffled feathers.

Don't forget that there were four species sporting in the water and drying in the sun *at the same time!* It was a fairly easy matter to identify them from our vantage point. And there were, of course, females and young of each group present.

And the sound! In general, it was like a company of very large bumblebees.

Even a movie camera with sound equipment could scarcely have done justice to the spectacle: one must actually be right there to catch the full effect of the flashing colors and the dancing movements! One must be there, and yet even then he wonders with a part of his mind whether he is in a dream, perhaps, or in some theatre beholding another exquisite "Fantasia."

We remained three hours, and little flocks kept coming and going. We do not magnify the truth at all when we say that we saw hundreds of hummingbirds! It's hard to believe—this far north of the tropics. Perhaps it happens every summer in Little Canyon.



Edward J. Blood

With slender wings the hummingbird flails the air perhaps 200 strokes per second to suspend itself before trumpet flowers and probe for nectar and small insects. Such food hunting demands special equipment, so nature has developed a sort of long-billed helicopter which can fly straight up and backward or hang stationary in the air. In forward flight they are swift and direct. Some migrate great distances.



HAWK WATCHING in the Watchungs

By Edward B. Lang

BROAD-WINGED hawks — hundreds of them in climbing, swirling flocks—appear over the factories and teeming suburbs of northeastern New Jersey on some fall days. They climb until they are only tiny specks in the sky, then straggle off into the southwest on set wings. Before they have disappeared other flocks come out of the smoky haze. Flock follows flock in a slow parade before the astonished eyes of members of Newark's Urner Ornithological Club, watching from a clearing on the crest of the Watchung Mountains.

Such an observation is the reward of many week-ends spent patiently watching migrating hawks. The watchers are less interested in seeing rare and unseasonal birds than in discovering some new facts about the hawks that fly over their very back yards each spring and fall.

Unlike so many of our birds that



Edward B. Lang

From the lookout above the quarry at Upper Montclair, N. J., members of the Urner Bird Club watch a flight of broad-winged hawks.

migrate only at night when they cannot be seen, hawks are strictly diurnal migrants, and can be readily studied. Such observation is still further facilitated by their large size and the ease with which a trained observer can identify them at great distances. Hawks, as a group, possess a unique ability to utilize the natural forces of the atmosphere to accomplish their migrations with a minimum expenditure of effort. These birds—like the broad-winged hawk, for example, that travels to Northern South America for the winter—are skilled in the use of those rising columns of warm air, to which the meteorologists give the name "thermals," as well as the up drafts found along mountain ridges. Since the topography of certain areas is conducive to the development of such air currents, hawk flights are usually found to go over the same spots every fall, and the study of hawk migration is very largely one of locating these strategic areas.

The hawk flights over northeastern New Jersey had been neglected by field students for many years. Beyond a few reports of hawk shooting in the Watchungs, there was no real knowledge of the flights until the late Warren F. Eaton of the National Audubon Society's staff, discovered by field work and the accumulation of many scattered records, that the hawks followed what appeared to be a well-defined flyway. Here was a ready-made problem that called for the working together of many observers toward its solution.

The recognition of this and other local problems that needed a central clearing agency for field data, led to the organizing in 1937 of the Raritan and Passaic Valleys Ornithological Club — later renamed to honor its founder, the late Charles A. Urner. In the fall of 1937 the club began its observations of the Watchung hawk flights that have extended through seven fall and six spring migrations.

Urner Club members have watched migrating hawks from many places along the thirty-five mile length of the fish - hook - shaped Watchung Mountains between Paterson and Somerville, from the hills northeast of the Watchungs, from the Palisades and even from city streets. The most frequently-used lookouts have been a clearing above an abandoned trap-rock quarry at Upper Montclair, and a fire-tower at Mountainside, both on



S. A. Grimes

Slim-winged and long-tailed, marsh hawks are oftenest seen coursing nonchalantly over marshes and fields. The immature bird, with its bright rusty-orange under parts and owl-like face, is perhaps the most handsomely plumaged young hawk. In any plumage, this species has a white rump-patch like that of the flicker.

the easternmost ridge — the First Mountain.

Neither lookout is more than five hundred feet above sea level, yet both command wide panoramas of the valleys and ridges of the New Jersey Highlands to the west, and a densely populated plain thirty miles long and almost fifteen wide, to the east. The clustered factories and large buildings of Newark, Elizabeth, Passaic and Paterson, joined together by many residential communities, appear to be one vast city stretching toward the towers of Manhattan that line the horizon.

There are days when a dozen species pass by the observation points—the soaring red-tails, red-shoulders and broad-wings, agile sharp-shinned and Cooper's hawks, swiftly-flying sparrow, pigeon and duck hawks, and marsh hawks, ospreys, turkey vultures and majestic bald eagles. There are also days when cold damp winds sweep the ridges and no birds are seen for hours at a time by the shivering watchers.

The most indefatigable watchers at the Upper Montclair quarry have been Floyd P. Wolfarth of East Rutherford, Hobart Van Dusen of Montclair and Arthur S. Peterson of Cedar Grove. John T. S. Hunn of Plainfield and David Fables of Roselle Park have spent many hours on the Moun-

tainside tower recording the movements of the hawks along the southern half of the Watchungs. The late William J. Rusling, James L. Edwards and C. D. Brown of Montclair, have made important observations along the lines of flight both north and south of the Watchungs. Formerly active observers now absent on war duty are Alfred E. Eynon (Lt., U. S. Army), Gilbert Cant and Russell Wester.

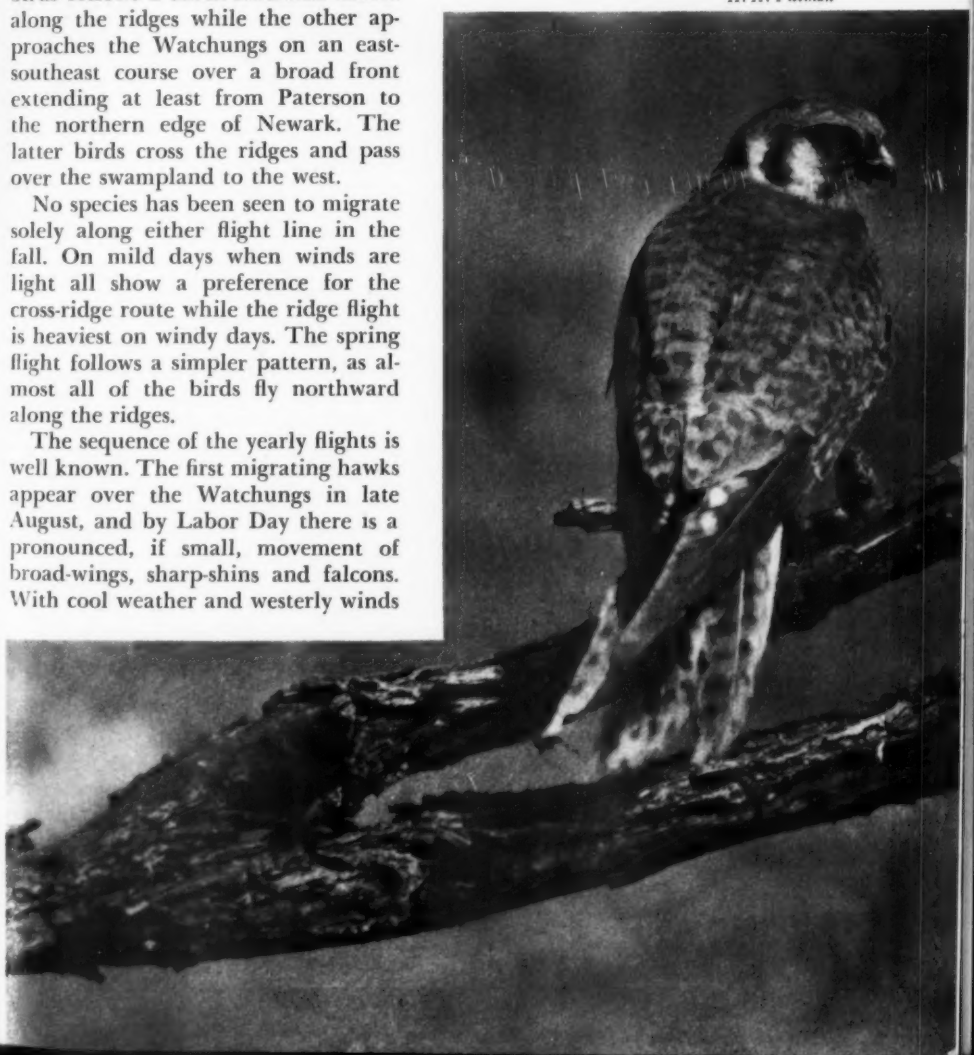
The comparison of flights seen by these observers has shown that the fall migrants cross the area along two principal flight lines. One group of birds follows a south-southeast course along the ridges while the other approaches the Watchungs on an east-southeast course over a broad front extending at least from Paterson to the northern edge of Newark. The latter birds cross the ridges and pass over the swampland to the west.

No species has been seen to migrate solely along either flight line in the fall. On mild days when winds are light all show a preference for the cross-ridge route while the ridge flight is heaviest on windy days. The spring flight follows a simpler pattern, as almost all of the birds fly northward along the ridges.

The sequence of the yearly flights is well known. The first migrating hawks appear over the Watchungs in late August, and by Labor Day there is a pronounced, if small, movement of broad-wings, sharp-shins and falcons. With cool weather and westerly winds the flight accelerates rapidly. Broad-wings and sharp-shins approach their maximum numbers for the year around September 20th. Sparrow hawks and ospreys are often abundant in September while red-shouldered, red-tailed, Cooper's, marsh and pigeon hawks, with turkey vultures and bald eagles, are seen on every good flight

It is easy to think of the buteos as "bombers," good for high altitude long-range hunting. Accipiters are "pursuit planes" best for short distances where maneuverability is needed. Falcons are "dive bombers," plummeting down on their prey. Sparrow hawk below makes sorties for grasshoppers and mice.

H. H. Pittman





A. Dubois Du Bois

Broad-winged hawks belong to a group called buteos or soaring hawks that start their south-bound trip in early September and drift down the Jersey ridges in great numbers.

day. On a clear day in late September it is not unusual to see a hundred or more broad-wings, half as many sharp-shins, a dozen or two sparrow hawks, several ospreys and two or three of each of the other species.

Sultry or stormy weather in early September has been found to affect the migrations greatly. On days when winds are from the east or south the *Accipiters* — sharp-shinned and Cooper's hawks—and falcons continue to fly in diminished numbers, but the *Buteos* are scarce. A record broad-wing flight in 1938 followed a prolonged period of bad weather. A low pressure area had enveloped the eastern seaboard during the normal peak migration period as a hurricane moved northward from Florida. After that now-famous hurricane had smashed through Long Island and New England the pent-up broad-wings must have moved south almost in a body. While this flight was considered unusual at the time, several similar flights that have passed the Watchungs have shown that the movement of large groups of broad-wings may be expected whenever unsettled weather breaks up the normal steady migration of early September.

By the end of the month all but the last of the straggling broad-wings have gone. As sharp-shins, falcons, ospreys and vultures become fewer, the red-shouldered hawks increase until they dominate the October skies. By the end of the month the red-shoulders are mostly gone but the red-tails continue to increase, and reach their season's peak in early November. As gusty winds strip the last leaves from the Watchung's trees a few red-tails hustle down the ridge each day. These soon dwindle and are gone by Thanksgiving.

The spring migration is essentially a reversal of the fall movement. The first migrant red-tails of the year are seen in late February and become common in March. Sharp-shins appear shortly after the red-tails begin to fly, and as in the fall, are seen

throughout the entire migrating season. Red-shouldered hawks show a striking increase during March. In this month all of the other species seen in the fall, except the broad-wing, join the migration.

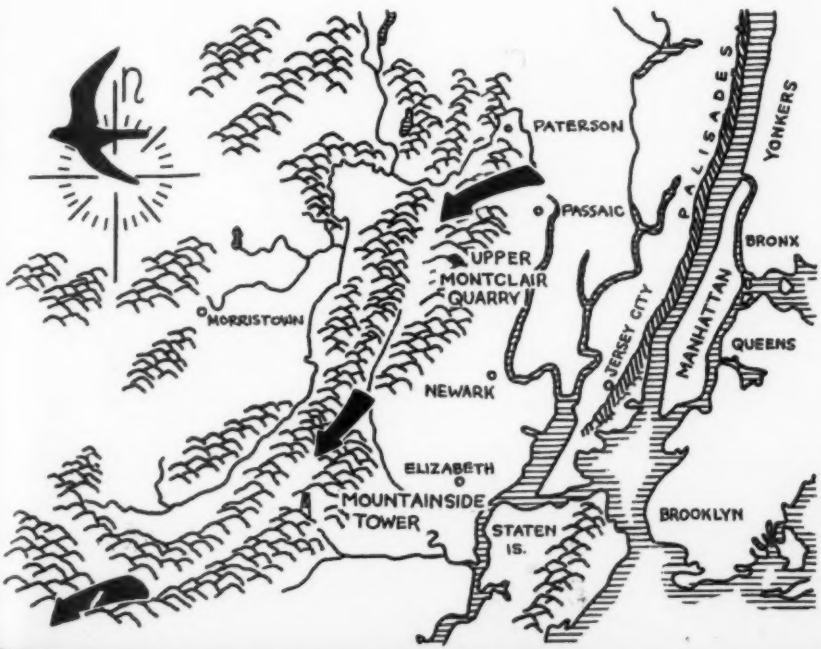
The broad-wings appear in early April, increase rapidly, and reach their seasonal peak near the third week-end of the month. While they are far fewer in numbers than in September the flocks of broad-wings always climax the spring flight.

Sparrow hawks are a lesser feature of the late April flights while bald eagles pass by regularly, several on each fair day. But this anti-climax is short-lived. The hawks are dwindling rapidly as the first waves of warblers flood the trees of the Watchungs in early May, and are gone within a few days.

Each year's hawk migration varies considerably from this average pattern since most of the hawk species rise and fall in their numbers from year to year. Further discrepancies have been seen in the effects of good weather or bad, accelerating or holding back the migration.

The relation of weather to hawk movements is understood but superficially and is one of the major unsolved problems. An even more interesting question is that of the relationship between the Watchung flights and those at Hawk Mountain, Penna.; Mt. Tom, Mass., and Cape May Point, N. J. How many of these are on the same flyway and receive the same birds? If they are, what routes are used by the hawks between these points? Are some of the spring routes quite different from those used in the fall?

The problems that have cropped up in the course of these hawk observations are only a few of the many ornithological mysteries that may be solved by cooperative bird study. New light may be thrown upon the roosting habits of common songbirds, the distribution of breeding birds and the relationships of birds to their environments by the planned field work of many amateur bird watchers.



South in autumn and north again in spring, hawks follow the hook-like Watchung range.



◀ Curator of Birds at Cornell Uni tion is now serving his country as a Ca rmy Air Corps, engaged in research wo rctic Section of the Arctic, Desert and T tion Center in New York City.

Georg
A R

BELOW—With research sketches and bird skin from the vast Cornell sets work, examining the plumage accurac in colors and markings.

BELOW RIGHT—In large sketche research data are collected e. Ho much of his painting is don ftenes living specimens. During a si n in M in 1941, he portrayed forty size.



George Miksch Sutton

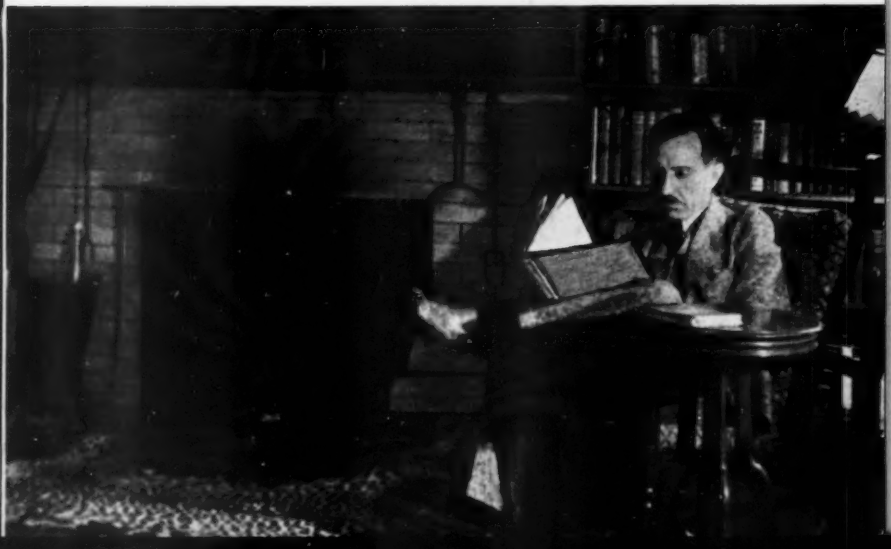
BIRDMAN'S BIRDMAN

Picture-Story by Edwin Way Teale

AMERICA's leading candidate for the title of "All-Around Birdman" is George Miksch Sutton. As bird-painter and writer about birds he stands in the front rank. As scientist, he is an authority on taxonomy and identification. As field-observer, he has seen most of the 1200 species and subspecies of birds north of the Rio Grande. As explorer, he has made historic discoveries, such as finding the second known nesting ground of the blue goose and the eggs of the Harris' sparrow. As Pennsylvania's State Ornithologist, as Curator of Birds at Cornell University, and—at present—as Captain in the Air Corps, he has packed an enviable amount of achievement and adventure into his forty-five years of living.

Five minutes after you meet him, you are eager to get out in the woods and fields and see birds for yourself. An exceptionally good conversationalist, with an enthusiasm for bird-study that is as contagious as it is sincere, he is one of the most inspiring of teachers. His memory is stocked with a vast supply of anecdotes, harvested from his years in the open. If enthusiasm for bird-study were a germ disease, George Miksch Sutton would be a one-man epidemic.

I remember vividly our first meeting although it occurred a number of





years ago. We were having dinner together in the main dining room of the Ithaca Hotel. Our conversation turned to play-instinct in birds. This reminded Sutton of two vesper sparrows he had reared in southeastern Michigan a few years ago. They would line up and race to the end of a sort of established runway, then turn around and race back again. Warming up to his description, he demonstrated with his hands how they flapped their wings as they ran; how, with out-thrust feet, they skidded to a stop. Suddenly, we realized there was a hush in the dining room. All eyes were on us. We returned a little sheepishly to our eating.

It is this boyish enthusiasm that makes Sutton such an engaging companion. Olin Sewall Pettingill, who has been on many expeditions with him has put into words what many have felt. In a recent letter to this writer, he observes: "His effect on me and other persons is one and the same. He generates a genuine enthusiasm and purpose for a quest that I have not known to be equalled by any other ornithologist."

A few years ago, Pettingill and Sutton were attending a house party at one of Cornell's leading fraternities. There were refreshments, ladies invited from afar, and a name band from New York City. In the small hours of the morning, it suddenly dawned on Pettingill that only a

Many of the curios collected by Fuertes, with whom Dr. Sutton worked during his early years as a bird-painter, are still in the studio. They include oddities which range from Oriental items and the stone tomahawk Dr. Sutton is examining, to a twisted beech root which was carved and painted by Fuertes into a realistic imitation rattlesnake. This studio, the birthplace of most of the late artist's famed bird illustrations, is now serving the same purpose for his famous pupil.

handful of couples were responding to the expensive music and that the low-lit alcoves were sadly neglected. Downstairs in the game room, he discovered, couples were crowding around Sutton as he led a lively discussion on hybridization among ducks, nest parasitism and Eskimo foods. Incidentally, if you ever come upon an ornithologist painting birds and carrying on conversations in English, Spanish and Eskimo all at the same time, you can be sure it is George Miksch Sutton!

Some of Sutton's earliest researches in ornithology were carried on in church. At Bethany, Neb., where he was born on May 16, 1898, his father was a minister and college teacher. Sunday services were always of special interest to young George. Whenever possible, he would choose a seat behind some lady wearing an ornate creation of the milliner's art. During the service, he would study at close range the feathers which adorned it. If he could find a pencil in his pockets, he would make careful drawings of the individual feathers on the margins of his Sunday-school paper.

Once, when a neighbor boy shot a marsh hawk, Sutton carried the bird to school in his long woolen stocking cap for four days in succession, keeping it during school-hours in his desk where he could stroke the soft breast-plumage and spread the wing-feathers without attracting attention. There never has been a time that he can remember when he was not passionately interested in birds. He is what Dr. Frank M. Chapman has called "a born birdman."

As is to be expected in a preacher's family, Sutton moved about a good deal during his boyhood. From Bethany, the family moved to Minnesota, then back to Lincoln, Neb., then west to Oregon, then east again to Illinois, then south to Texas and finally east to West Virginia. This constant shifting about introduced him to the birds of many regions. He wore out more than one copy of Chapman's "Bird Life" identifying the species he encountered. All the while, he kept drawing pictures of the birds he met. In a book by Florence Merriam Bailey, the boy made a great discovery —pictures, wondrously alive, by the great American bird-painter Louis Agassiz Fuertes.

They set him off producing a whole new series of sketches. These drawings were made with pencil on thin sheets of writing paper and the sheets were pasted together to form a roll. By the time he was thirteen, and living in a large white house on a hill near Fort Worth, Texas, young Sutton was filling little notebooks with his field observations and had his backyard dotted with coops and cages, temporarily holding captive hawks and owls, coyotes and skunks, prairie dogs and road-runners from which to make sketches.

It was through these latter pets that he made the acquaintance of the great Fuertes. A story he wrote about the road-runners in 1915 was published in the pages of this magazine, then called *Bird-Lore*. It was illustrated with one of his drawings. Fuertes noticed it. A correspondence between the two developed and, in the spring of 1916, the noted artist invited the boy to spend a summer with him on the shores of Lake Cayuga, not far from Ithaca, N. Y. Sutton lived in a tent near Fuertes summer home and the two worked together week after week. This friendship lasted until Fuertes' tragic death in a motor accident in 1927. Since 1931, Sutton has had the inspiration of making his home in the studio which Fuertes built and in which he worked.

Through the years between his boyhood and his appointment as Curator of Birds at Cornell—while he was attending Bethany College, in West Virginia, and getting his doctor's degree at Cornell; while he was a member of the staff of the Carnegie Museum, in Pittsburgh, Pa.; while he was State Ornithologist for Pennsylvania—Sutton kept on with his bird painting, increasing his technical skill from year to year. Few artists have ever been his equal in the amount of life he can get into the eye of a bird. Among the books for which he has painted illustrations have been: Todd's "Birds of Western Pennsylvania," Bailey's "Birds of Florida," Allen's "American Bird Biographies," the "World Book Encyclopedia," and Roberts' "Birds of Minnesota."

Just before the war, Sutton was specializing in Mexican birds. During one expedition below the Rio Grande, in the spring of 1941, he completed life-size paintings of forty different species, including the curious tiger bittern, the squirrel cuckoo and the Alta Mira oriole. All of this work was done in the field and behind each sketch there is a story of painstaking effort. In one instance, while a small bird struggled and twisted and pecked at his fingers, he held it in one hand while he worked with the other.

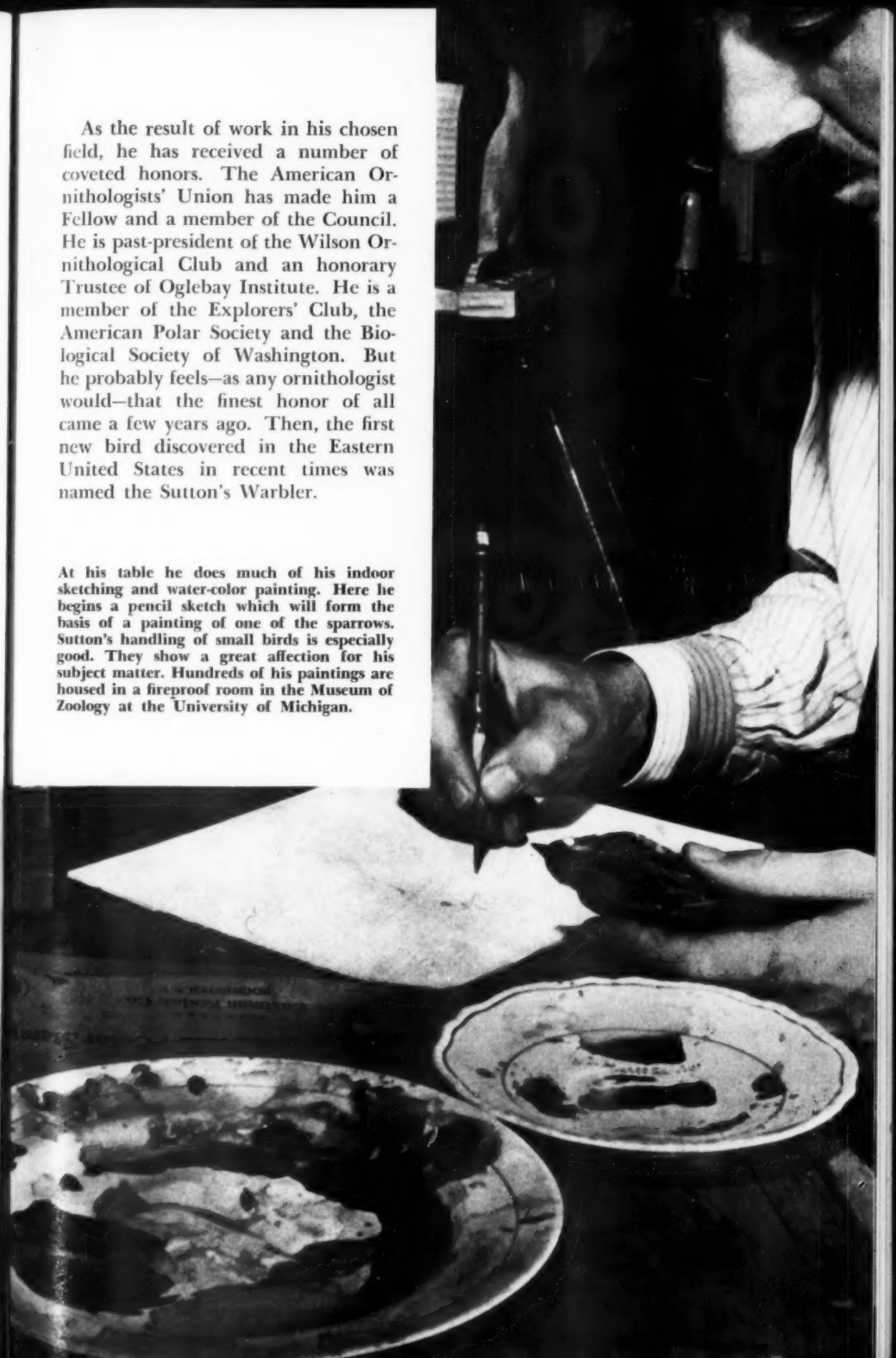
In his later paintings, Sutton has been giving an increased amount of attention to the botanical backgrounds, thus providing a more accurate idea of the bird's habitat and increasing the scientific value of the picture. During several summers spent at the Edwin S. George Reserve of the University of Michigan, he produced a series of small-bird portraits as charming as they are scientifically valuable. They depict the juvenal plumages of such species as the vesper sparrow, the chipping sparrow, the red-eyed towhee and the indigo bunting.

In his books, Sutton writes just as he talks—with color and vitality. His "Birds in the Wilderness" is a modern ornithological classic. The chapters on his nightmare experience of crawling into the hollow-log nest of the turkey buzzard; of his search for the eggs of the Harris' sparrow; of his fifty-foot fall from a raven's cliff in Pennsylvania, are examples of nature writing which have rarely been equalled for vividness. Few authors have been able to put themselves into their books as Sutton has done in this volume. Read "Birds in the Wilderness" and you have met George Miksch Sutton.

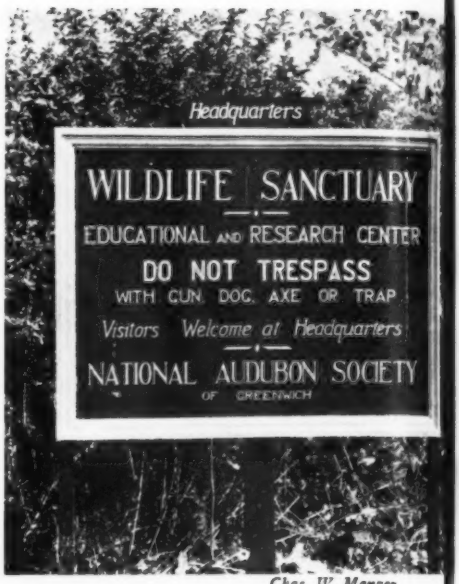
In his pursuit of ornithological knowledge, he has made many trips with John Semple who helped him finance some of the expeditions. He has made expeditions to Labrador, to Hudson Bay, to British Columbia, to the Everglades of Florida and the great swamps of Louisiana, to Saskatchewan and the Rockies and Mexico. During one solo expedition in 1929-30, he spent the winter on Southampton Island, that lonely Arctic neighbor of Baffin Land. The adventures of this one-man expedition have been recorded in "Eskimo Year." They also helped fit him for the specialized work he is now doing with the Arctic Section of the Arctic, Desert, and Tropic Information Center of the Air Corps in New York City.

Almost legendary is Sutton's consideration for beginning artists and younger scientists. He is careful to give credit to those who accompany him on expeditions and he sometimes spends a full day composing a letter of encouragement and advice to some young artist he has never met. He still remembers the kindness of Fuertes and tries to pass it on.

As the result of work in his chosen field, he has received a number of coveted honors. The American Ornithologists' Union has made him a Fellow and a member of the Council. He is past-president of the Wilson Ornithological Club and an honorary Trustee of Oglebay Institute. He is a member of the Explorers' Club, the American Polar Society and the Biological Society of Washington. But he probably feels—as any ornithologist would—that the finest honor of all came a few years ago. Then, the first new bird discovered in the Eastern United States in recent times was named the Sutton's Warbler.



At his table he does much of his indoor sketching and water-color painting. Here he begins a pencil sketch which will form the basis of a painting of one of the sparrows. Sutton's handling of small birds is especially good. They show a great affection for his subject matter. Hundreds of his paintings are housed in a fireproof room in the Museum of Zoology at the University of Michigan.



Chas. W. Manzer

EXPLORING NATURE

By Richard L. Weaver

Educational Director,
Audubon Nature Center

SEEING a cicada emerge from its case, a snake eat a frog, a great blue heron stand poised for a polly-wog dinner, hearing a katydid or a chewink repeat its name, is the stuff that nature is made of.

Learning to interpret the succession of plant growth, to associate animals with habitats, to observe food and water cycles in nature, to evaluate the true economic importance of certain species, and to understand the balance of nature, removes nature study from the merely *"What is it?"* stages. Such study provides a basis on which to build sound conservation attitudes.

When these fascinating studies have to be taken into the classroom, it takes an inspired and ingenious teacher to prevent the edge from being taken off. So frequently you find the result disappointing, with the child confused by the memorization of principles, names, and platitudes, and no real conception of the object discussed or the problem to be solved.

In the early stages of the child's experience with nature, a great deal of time can be devoted to answering the questions: "What is it?", "Where does it live?", "What does it eat?", "How does it protect itself?" and "How does it travel?" Much of this can be done with pictures, truthful and well-illustrated stories in the classroom. Although we should always remember that indoor exhibits and demonstrations, even the living plant or animal in the classroom, can never be more than a substitute for the real thing outdoors in its true setting and under normal conditions.

Some people have recently discouraged the exploratory phases of nature study, of getting acquainted with flowers, birds, snakes, insects, worms, fungii and the numerous other forms, on the basis that we can get proper conservation attitudes without identification and life-history observations. The difficulty in eliminating this step is that if you do not recognize a fringed gentian when you see it, an attitude about protecting rare flowers will not protect the gentian. And further, sound conservation prevents the making of such a rule as "Do not pick wildflowers."

Making natural history and conservation dynamic in the classroom seems to be much easier for those teachers who have a back-log of experience in the out-of-doors, a session

at a nature camp or nature training school, a field course in the teaching of natural history, or a conservation laboratory or workshop. It does not necessarily mean a thorough training in natural history at college. If the attitude of the teacher is one which emanates from a love of the out-of-doors, from the richness of travel and exploration, from genuine interest in observing nature and learning her secrets, conservation will be taught well, and the children in turn will have the proper attitudes about their nature experiences and about conservation.

Getting teachers outdoors to observe nature, to study the interrelationships, and to plan an individual approach for their particular grade or subject, are the objectives of the year-round Audubon Nature Center at Greenwich, Connecticut.

Classes for teachers throughout the school year will be held on Saturdays, with the 280 acres as an outdoor laboratory, where nature in many of its forms can be observed throughout all the seasons, where demonstrations of management of flora to influence the fauna can be studied, where successive stages of plant growth and a variety of habitats can be illustrated.

To assist teachers in taking these stories into the classroom, some of the course time will be devoted to visual aids in conservation, nature literature and writers, nature crafts and games, nature museums and nature trails, programs of study in conservation, government agencies and organizations interested in conservation and sources of material.

Students will select individual problems or projects, correlated with their teaching. Some of the problems which present a challenge are: Where can we see soil erosion near my school? How is our water protected from pollution? What are the sources of natural food and cover for birds about our school or in our community? How could we establish a nature trail or a nature museum? What books should we have in our school or town library to assist in conservation teaching? Where can we get suitable slides and movies? What should I photograph for school use? What projects can I have my class undertake outdoors?

As teachers and Scout leaders visit the Nature Center with their children, outdoor projects will be planned to permit practical assistance in some of the management practices, nature trail maintenance, establishment of bird feeding stations, bird houses, and mammal observation posts, and construction of museum exhibits, so that some of these things can be duplicated in their schools or communities.

The weekly nature program will also provide for those people wishing to visit the Nature Center occasionally, through nature walks on Sunday mornings over the five miles of trail, nature talks and movies on Sunday afternoons, and a regular monthly series of lectures on natural history.

A Conservation Workshop, where teachers will enroll for several weeks and live at the Center is being planned. Facilities may be ready for next summer. Much of the winter course for teachers will be embodied in the program, but a definite part of the time will be allotted to program suggestions and projects suitable for out-of-school groups, to assist garden clubs, women's clubs, 4-H clubs and Scout groups.

The Nature Center will be a source of instruction for teachers, an outdoor laboratory for school, Scout, and garden club groups, a center of information and ideas on current conservation problems and teaching techniques.

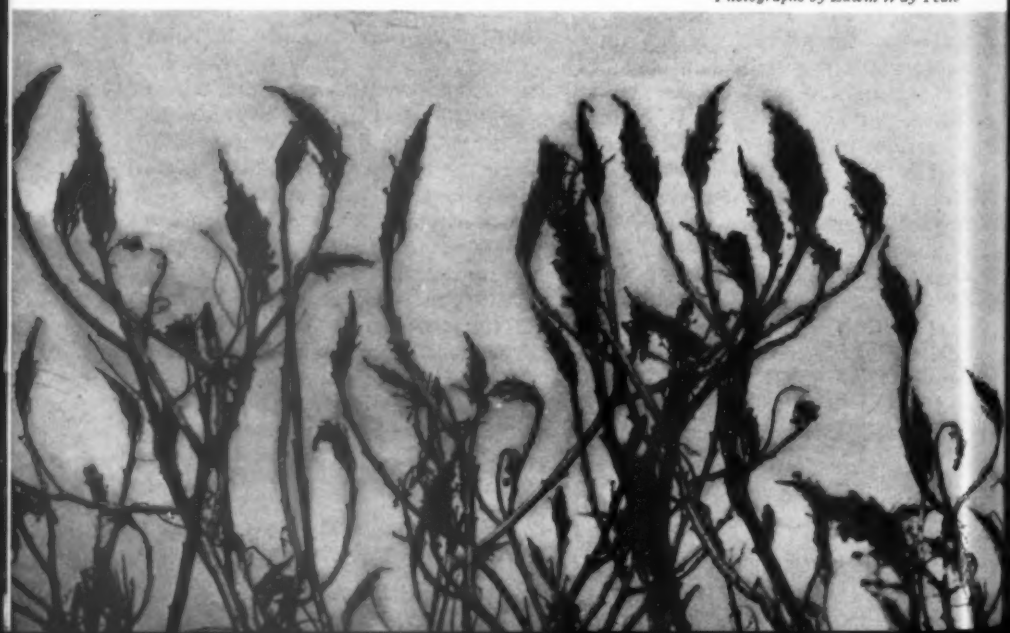
Feeding Birds in a War Winter

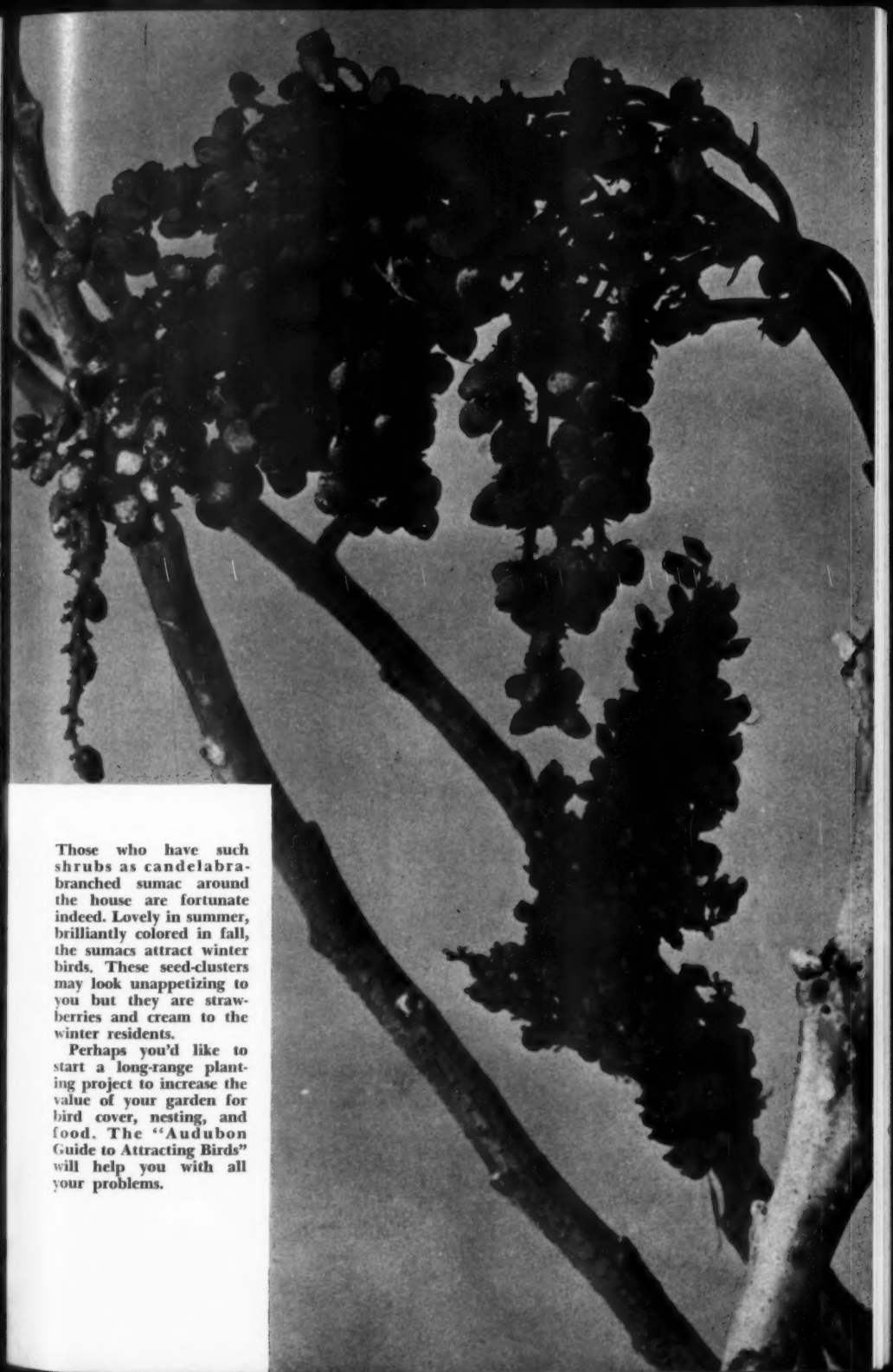
By Alexander Sprunt, Jr.

PROBABLY no one phase of activity connected with birds so engages the attention of the amateur student as does the attraction of birds to a feeding station. In every county, we can find someone who puts out food for birds, particularly during the winter. Where and when such procedure began is lost in past ages, but it is not necessary to know the history to understand and sympathize with the idea. Specific reasons for indulging it may vary with individuals but basically, it is because we like to have birds around. In order to accomplish this end it is realized that something besides interest is essential, therefore, because something to eat is the most certain means of attracting anything, humanity included, birds become backyard visitors to many American homes, as well as inhabitants of woods and fields.

The how, when and why of bird feeding can never be stressed too often and should be carefully considered by anyone undertaking the procedure for the first time. In the first place, all will agree that it pays large dividends. Few who have engaged in it are content to experiment and then stop. It usually grows upon the experimenter to the extent of becoming an annual institution, it is as foregone as is the providing for one's livestock on a farm! It is a regularly scheduled project in many families and a great many individuals have begun their ornithological interest by this simple means. There is a satisfaction in it for all the

Photographs by Edwin Way Teale





Those who have such shrubs as candelabra-branched sumac around the house are fortunate indeed. Lovely in summer, brilliantly colored in fall, the sumacs attract winter birds. These seed-clusters may look unappetizing to you but they are strawberries and cream to the winter residents.

Perhaps you'd like to start a long-range planting project to increase the value of your garden for bird cover, nesting, and food. The "Audubon Guide to Attracting Birds" will help you with all your problems.

family which stands as a source of constant expectation and enjoyment and undoubtedly reacts to considerable benefit among avian populations of many localities.

It has been, and will continue to be, a great morale builder among invalids. Hours have been made bright and a new interest in life discovered when, obliged to sit inactive in a chair, or lying in bed, they have watched the varied and animated comings and goings on the window-sill. Keeping lists of different species and counting visits of individuals—all this helps pass the time and adds to your knowledge. Doubtless many are grateful to birds today for comfort and cheer which might not otherwise have occurred in days of sickness or convalescence.

Today, more than ever, bird feeding is popular, but there are problems connected with the times which loom for any enthusiast. In war winters there are many phases to consider, and in these days of rationing, there may be those who will think that this is another activity which must be dispensed with. It need not be at all and should not be, for now we have need to conserve our natural assets as never before. Our own existence depends upon them; on the lumber, oil, coal, soil and water so obviously vital to us. Wildlife is an asset no less important than these and birds are a part of wildlife. They form a cog in an essential machine, a gear if you will, which when meshed with other gears, produces the precision power of that great machine we call nature. We have sadly interfered with the smoothness of that machine in the past; we have too often stripped its gears, and though it has never actually stopped running, it performs in a jerky, irregular manner which is very unlike the velvety easy precision of a





well-oiled, completely-geared mechanism. We must not strip any more of these gears, we must not knock out any more cogs. Anything we can do to increase and maintain such an asset is an obligation and vital to our future.

If then, you are resolved to do something about feeding birds this winter, there is one prime requisite never to be forgotten. If you start it, *keep on with it.* Do not feed for one week or one month, then suddenly stop. By then we may be into the severest weather of the season, with certain birds more or less dependent on your bounty. If you fail, where are they to turn amid the drifted snowbanks and ice-covered ponds?

In the South, of course, such contingencies are not so likely to be encountered but even there, it is never wise to start a feeding station and suddenly stop it. After regularity in feeding, birds become surprisingly dependent on such a procedure and though natural food is far more abundant in warmer regions, it works a hardship on those individuals which have become regular visitors to a well-supplied board. Continuance will repay you in many ways for your small effort. The children of the house would, no doubt, enjoy taking it on as a war project and if the value of it is explained their interest will probably be easily stimulated.

It is true that many recognized bird foods will be hard to get this winter and the pinch has already been felt in certain localities. Such time-honored items as sunflower seed, hemp, wild rice and suet are already difficult

Edwin Way Teale

How appetizing the frosty fruit of the bayberry must look to myrtle warblers, downy woodpeckers, flickers, bob whites, and other species which may winter around your home. The shrub can be an attractive part of your landscape planting scheme, as well as a good cafeteria for the birds.

to secure. All these are excellent and have been the mainstay of many operators in the past. But there are adequate substitutes. Feed the above when available but do not be discouraged at failure to obtain them as the winter advances. Remember that bacon drippings, mixed with nuts and yellow cornmeal can be substituted for suet. Mould the mixture to fit your container or holder. Almost any fat will act as a basis for such a food.

Oatmeal is still readily available and excellent either as dry food or cooked and moulded into convenient shapes. In the South, where hominy is a staple, it can be used instead of oatmeal. Known also as "grits" it can be cut into shapes when cold and will act as a foundation for nuts and fruit. Ordinary boxed commercial canary seed is good but may become scarce. Any of the sparrows and finches will eat it avidly. Millet is an excellent grain and easy to get in certain areas.

Fruits offer many possibilities. Raw apple is always acceptable and a baked one is a special treat. Nuts of various sorts are highly attractive. Hazel nuts, acorns, filberts, beechnuts and pecans are all taken by this or that bird boarder. The heavy-shelled varieties must, of course, be cracked and laid open.

Bread crumbs are consistently good, but should be limited largely to whole wheat loaves. And keep it *dry*. Mouldy bread is detrimental and sometimes even fatal to birds. Such danger also attends cracked corn and other grains—the so-called "scratch." This is the usual chicken food, and is now hard to get in many places, and is likely to become more so. Never put out a great deal at a time. Confine feedings to that amount likely to be consumed at a single sitting, as it were. Accumulations are apt to develop the mould or otherwise become contaminated by long exposure. It is well to have some sort of a roof or shelter on your feed tray if bread crumbs or scratch are used. This will keep off snow and rain and the material will remain dry for at least as long as necessary for the birds to consume it.

Peanut butter is an excellent item, as well as peanuts themselves. Such food is taken by many kinds of birds and is still obtainable. Shelled, mashed, whole or mixed with other material, peanuts can form pretty much of a mainstay. At "Manywings" a sanctuary in northern Florida, where so many people have visited, peanuts form one of the most effective foods.

The feeding equipment itself can be as simple or as elaborate as you may wish. Food, however, should not be scattered on snow. Your tray should not be placed too near dense shrubbery where lurking cats can hide, nor should it be completely in the open, exposed to wind and snow unless it is an enclosed feeder. Some sunny corner near a convenient window affording easy observation is good. Records can be kept from indoors by interested members of the family and the list of bird visitors built up.

Some sand or gravel, necessary in a bird diet for digestion, should be provided along with the food. In the South, where oyster shell is easy to get along the coast, ground-up bits of it will be eagerly taken. Water, of course, is vital always and a shallow container should have a supply at all times.

On farms, waste grain is always available and can be gathered in the fields and kept in convenient bags for feeding near the house. Corn stacks might be left in the kitchen garden which will provide both food and shelter. Cover is a very important item and in severe weather birds must



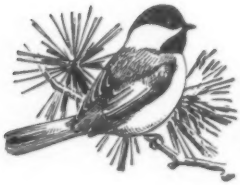
Marie V. Beals

This is one way to provide birds with a wind and snow sheltered place to feed and roost. It could be placed at the back of the lot. Such shelters are particularly good for bob white and pheasants. But be sure roving cats do not make a death-trap of your good intentions.

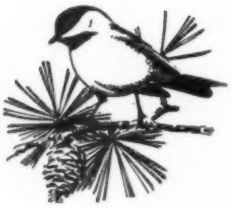
have some protection from the wintry winds and bitter nights. If your yard is quite bare of bushes or shrubbery, the discarded Christmas tree stuck firmly into the ground makes a fine shelter. Pieces of suet (or substitute) can be attached to the branches along with a doughnut or two. Berry-bearing shrubs are always excellent because of the combination of food and shelter they provide. Even an ordinary brush pile will be taken to readily, especially by wrens, white-throated sparrows and juncos.

So, throughout the coming months of cold, there are good times ahead for you and the birds. Provide them with regular diet and they, in turn, will give you and yours many hours of pleasure and satisfaction. Have a good bird book always handy near the window, in which you can find identifications of any strange visitor. Such a volume as Peterson's "Guide," either Eastern or Western, cannot be improved upon. Keep a pencil and pad at hand and the permanent list might be hung on the wall nearby where it can be readily added to or referred to by any member of the family.

Probably you will find that window the most popular one in the house this winter! It will be frequented at all hours for there is never any telling when something of interest is going on outside at the trays. And let's remember that, in such a project we are also helping ourselves, for the birds are our tireless all-year-round allies in the war on insect pests.



The Director Reports to You



Oil in the Glades

NEWSPAPER reports of the finding of good grade of oil by Humble Oil & Refining Co. near Sunniland in Collier County, Florida, is certainly not good news from the standpoint of the wildlife in the glades and may throw a monkey-wrench in plans to establish soon an Everglades National Park in southwest Florida.

It is not necessarily, however, bad news; Sunniland is at quite some distance from the glades proper and by no means directly in that part of the natural drainage system which furnishes the bulk of the fresh water flow to the southern glades and the heads of the great rivers on the southwest coast. Moreover, reputable oil producing companies, operating with the most modern equipment and cognizant of the importance of retaining public good-will, can as of today produce oil with but slight risk of blowouts or lesser pollution of areas surrounding their drilling and pumping operations.

And it still remains to be confirmed that oil of commercial quality has been found in paying quantities. Should it be confirmed, it behooves our Society and all other national conservation groups to leave no stone unturned to assure the fullest possible cooperation on the part of the producing companies in taking such measures and so managing their operations as to reduce damaging risks to an absolute minimum.

For the benefit of those readers who may not be personally familiar with the area, it may be said that the vicinity of Sunniland is not within the boundaries of the proposed Everglades National Park. However, the recent announcement naturally produces great excitement as to potentialities of oil elsewhere in south Florida, and it is easy to understand that this makes the acquisition of lands for park, refuge or monument purposes more difficult.

If there be a discovery of important additional oil resources, it little behooves conservationists to decry such an invaluable increase in the country's total oil resources, but we must stand fast against any possible letting down of standards of our national park system, which do not permit commercial exploitation within national park boundaries, and we must take steps to acquaint the public and the officials of the oil companies concerned with the relatively great long-term value of the preservation of natural conditions in southwest Florida.

Convention News

Much good comes from a meeting of minds, and when members and friends of the National Audubon Society come together at a convention, it is a stimulating experience. The interchange of ideas, both at formal sessions and among informal groups before and after meetings, is of benefit to all concerned and certainly the staff is grateful for the opportunity of personal contact with our members, for

we are fired anew by your enthusiasm and return to our tasks with renewed vigor and determination to carry on the Society's work to the best of our ability.

The open house gatherings at the Audubon Nature Center were a great success, in spite of the weatherman's lack of cooperation on Saturday, October 16. It takes more than rain or the threat of rain to dampen the spirits of a loyal Audubonite, however! The faithful, who began to arrive before nine o'clock in the morning, remained throughout the day to wander over the nature trails, heedless of wet grasses or mud.

But Sunday was a beautiful day! The sun shone brilliantly, lighting up the rich colors of the autumn landscape, making the Center a place of beauty to be long remembered by more than four hundred people who were our guests. On both Saturday and Sunday, movies were shown in the museum in the late afternoon, and various members of the staff discussed the educational program that is, at this writing, well under way. Because of wartime transportation restrictions, many of you were too far away to come to the Center or to the meetings in New York, but we know that you were with us in spirit, and that is a good augury for the future of our work.

With or Without Points

Following the annual meeting on Tuesday, we had an old-fashioned get-together and buffet luncheon at Audubon House in New York City. This was a real home folks affair, with the women of our staff displaying remarkable domestic abilities in preparing the fare. There was much good conversation and good fellowship in evidence, which was brought to a final climax during the evening, when 355 people attended the banquet at the Hotel Roosevelt.

Serious Conservation Matters

Proof of the vitality of our organization in wartime, the formal convention sessions on Monday and Tuesday drew an excellent attendance, with members and the general public displaying a heightened interest in the information which our speakers had to offer. Dr. Ira N. Gabrielson told of wildlife conditions in Alaska and of the new problems to be faced because of the influx of military and civilian population, and the disturbance to wildlife, in some areas, through the creation of new roads, new landing fields and new settlements. The steps to be taken to protect Alaska as the home of the greatest bird colonies in the country, and as the last reservoir of the great game herds to be found under the American flag, will depend upon how the future unfolds, but Dr. Gabrielson believes that we should begin working now to change the concepts of the people of Alaska and of the people who are going to go there, regarding the extent to which wildlife may be utilized.

Birds and the Soil

In ten years, the Soil Conservation Service has changed the land pattern of more than 40,000,000 agricultural acres, bringing both man and birds, as well as other wildlife, a more prosperous living. Dr. Hugh H. Bennett, Chief of the Service, gave us facts and figures to illustrate how strip-cropping, better pasture and range management, the creation of farm ponds and reservoirs for stock and other soil conservation measures have created a better environment for birds that have returned the favor by helping the farmer. Dr. Bennett, a true evangelist for the cause of conservation, gave us



Chas. W. Manzer

an encouraging over-all picture of the work and accomplishments of his agency, and stressed the interrelationships between good soil practices and an abundant wildlife.

War and the National Parks

Mr. Newton B. Drury, head of the National Park Service, told us of wartime pressures for lumbering, grazing and mining in the Park and Monument areas. Mr. Drury, loyal to the Park Service ideal of protecting the areas under his guardianship from commercial exploitation, has with skill and tact carried his Service through many a difficult situation, and future generations will be grateful to him when, in times of peace, they and their children can enjoy these national treasures that might have been disturbed or destroyed if Mr. Drury had yielded to short-sighted demands. Important during wartime as in peace, our great scenic museums are guarded by a National Park policy which we should all strive to support.

It was indeed good to hear, also, of the advances that are going ahead even in wartime. By the time this magazine reaches you, the Big Bend in Texas will probably have become a full-fledged national park, since all of the necessary lands have been acquired and the deeds turned over to the federal government.

Indiana Post-War Pattern

The Izaak Walton League is to be congratulated for its loyal support of conservation during wartime, and for its farsightedness in planning post-war projects which will not only be of benefit to the land and to wildlife, but to that transition period after the war when economic and employment problems will have to be deftly handled. Len Hofmann, head of the Indiana Division of the League, discussed plans that are being formulated

Dick Pough leads a group off toward the nature trail at the Audubon Nature Center. This kind of scene was repeated over and over during the open house gatherings in October. Staff house in background.

through the cooperation of all of Indiana's conservationists, to restore to natural conditions approximately 100,000 acres of the world-famed Grand Marsh of the Kankakee, including the Beaver Lake bottom. This and companion projects will, when completed, be a great factor in preserving migratory waterfowl and marsh birds in Indiana, formerly one of the great concentration areas and feeding and resting grounds of the Mississippi flyway.

Movies and Bird Calls

Our annual conventions have long been famous for the excellent moving pictures which have always been part of the program and this year was no exception, in spite of the film shortage. John Storer's film of California condors in flight and another entitled "Birth of the Land" were greeted with enthusiasm. Dr. Arthur A. Allen, of Cornell, presented a beautiful film of familiar birds of the garden, presenting through an aesthetic approach the economic importance of birds as a control upon the insects which destroy garden produce and farm crops. Dr. Allen, with the help of this film, has become a real missionary to that part of the general public not yet aware of the importance of our common songsters. Bert Harwell's pictures of Western birds thrilled our Eastern audience, while his bird calls and songs made us forget for a moment that we were in a darkened hall, for our imaginations took flight, carrying us out into the fresh air and green sheen of the woodlands.

War Honors

During the latter part of November, we received very exciting news here at Audubon House. Mrs. Elsie B. Daves, of our staff, was notified that her son, Staff Sgt. Robert N. Daves of the Army Air Corps, had been awarded the Distinguished Flying Cross with the Bronze Oak Leaf Cluster.

Robert participated in a number of missions, and had been reported missing. The latest word from the War Department, however, is that he is safe and interned in a neutral country.

Important Conservation Conference

There is a deluge of bills already in Congress bearing upon further exploitation of our natural resources. Commercial interests of many kinds, such as stockmen, lumbermen, mining and oil interests, are already tending to overrun the safe boundary lines of conservation under the emergency pressures of war. Private as well as public promotion blueprints for postwar uses of waters, lands and minerals overlap and give promise of smothering with confusion the conservation programs for an orderly management of our natural resources. It is quite possible that these and other as yet undiscovered pressures will continue and be intensified during the remaining period of the war and perhaps for some time afterwards.

It seems high time, therefore, that the custodians of conservation interests get together and look over the situation. It is now planned that a conference of the major national conservation interests be called in Washington to survey and advise on these problems which so intimately concern the future welfare of our nation.

The call to this conference—to take place on December 4th, 5th and 6th and to be participated in by leaders of organized conservation groups—is being issued by the National Audubon Society, the Izaak Walton League, the General Wildlife Federation and the American Wildlife Institute.



T. GILBERT PEARSON

1873-1943

IN MEMORIAM

A Tribute by the Board of Directors

THE WORK of one of the great conservationists of our time is finished, but Gilbert Pearson's influence will long endure in the movement to which he was devoted, and his memory will be treasured by all who love wild things.

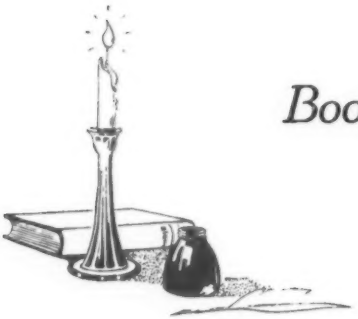
Thomas Gilbert Pearson was born at Tuscola, Illinois on November 10, 1873. He was the son of Thomas Barnard and Mary Elliott Pearson. Boyhood was spent in that primitive Florida which was a fitting background for his life work. In 1902 he married Elsie Weatherly of North Carolina and from this happy marriage three children were born: Elizabeth (Mrs. C. T. Jackson), Gilbert, Jr. and William. He was educated at Guilford College and at the University of

North Carolina, carrying forward his education by teaching biology at Guilford and at the North Carolina State Normal and Industrial College at Greensboro. He was Secretary of the North Carolina Audubon Society, 1902-04; Secretary of the National Association of Audubon Societies, 1905-20; President, 1920-24 and President Emeritus from 1934 to his death on September 3, 1943. He was President of the International Committee for Bird Preservation, 1922-1938; Chairman of the United States Section, 1922-43; and Chairman of the Pan-American Section, 1938-43. For twenty years he was a member of the Advisory Committee on the Migratory Bird Treaty Act. He was honored in 1925 by Luxembourg with membership in the National Order of the Oaken Crown; with the medal of the Societé Nationale d'Acclimatation de France in 1937; with the John Burroughs Memorial Association Medal in 1939; and with the degree of LLD by the University of North Carolina in 1924. He was the author of "Stories of Bird Life," 1901; "The Bird Study Book," 1917; "Tales from Birdland," 1918; "Adventures in Bird Protection," 1937; senior author, "Birds of North Carolina," 1919, revised edition, 1942; editor-in-chief, "Birds of America," three volumes, 1917; co-editor, "The Book of Birds," 1937.

Gilbert Pearson was a pioneer. Only one familiar with the indifference to conservation in all but a few states a generation ago can appreciate the work which he undertook in North Carolina and the skill with which he guided through the legislature of that state in 1903, and later through other southern states, the bill which was to be for many years the model Audubon Law. Although William Dutcher, as its first President, laid the foundations of the National Audubon Society, Pearson had a large share in its early planning, and succeeded Dutcher so early as its guiding genius that he must be considered the chief builder of the Audubon work in this country. It was he, again, who began large-scale nature education among children and under his guidance the Audubon Junior Clubs molded the nature interests of more than five million American school children. In a fourth field, that of international bird protection, he was a pioneer among those who realized that no one country could fight alone the battle for the birds.

He was too wise to think that the cause he loved could be served in one country alone. Increasingly, as the work in North America was put on a solid foundation, he sought friends and associates across the ocean and in our sister American republics to the south. Not only were existing organizations in Europe and in Latin America stirred to new life by his visits, and national groups formed where there had been none before, but progress was made in bringing these national groups together in effective cooperation for a common cause. From the beginning Gilbert Pearson knew what he wanted to do, and to the end of his life he did it. There were no false starts, nor ever any thought of turning back. For a generation the Audubon movement was Pearson's life; for a generation, in the mind of the American public, the Audubon Society meant Pearson. Writer, crusader, molder of legislation, money-raiser, teacher, administrator: in all that he did every energy, every ability was focused on the protection of wild creatures and on the building of an association of like-minded protectors of the world of nature from the ruthlessness or thoughtlessness of man.

Nature-lovers all over the world will join with us in paying tribute to our friend. As long as the National Audubon Society lives and serves it will owe a debt of gratitude to this far-seeing and courageous leader.



Book Reviews



DUNE BOY; THE EARLY YEARS OF A NATURALIST.

By Edwin Way Teale. Illustrated by Edward Shenton. 255 pp. Dodd, Mead & Company, New York, 1943. $3.00.

As nearly every reader of *Audubon Magazine* must know, Edwin Way Teale is one of our finest photographers of nature. In a few words of text, accompanying a panel of superb photographs, he can conjure the enchantment of flying birds—or the enchantment, for that matter, of a moss-clump or a mantis or a cricket or a bare twig—with a skill that is virtually unique.

In "Dune Boy" Mr. Teale has produced a book that does not contain a single photograph. It is what one of my rural neighbors calls "a real *book*-book." Except for the charmingly decorative illustrations by Edward Shenton, "Dune Boy" is all text. That, I think, is good news. For it provides reminder of a fact which Mr. Teale's justified reputation as a photographer occasionally tends to obscure: namely, that he commands a prose as excellent as his lens. He writes with simplicity and sincerity; he is never pretentious or "purple"; his writing is as sound, as homely, and as tangy, as a good apple.

"Dune Boy" is a memoir of Mr. Teale's boyhood summers on the farm of his maternal grandparents, Edwin and Jemima Way, in the Indiana dune-country. With phenomenal gift of recollection, the author has recalled, down to the last comma, the sayings of that wise and weathered old pair of pioneer people, so that they emerge as brilliantly distinct portraits: a fine and endearing (and often hilarious) study in rustic Americana. Mr. Teale recalls, too, a thousand other things from those early summers on the farm with "Gram" and "Gramp" . . . things which must bring nostalgic delight to every naturalist. All the sights and sounds and smells of the farm-country are here, perceived with the vividness of boyhood and with rare sensitiveness. A mere mention of chapter-titles will give some notion of the flavor: "Indian Days," "Wintergreen Berries," "Attic Hours," "The Death of a Tree." . . .

It is hard to imagine the reader who will not enjoy this book. For naturalists and countrymen, it is a guaranteed treat; and I should think it ought to be equally a treat for those legions of city-born and city-confined people who *wish* that they had had a boyhood of haying and strawberrying, woods-roaming and sky-watching, in the company of so earth-wise and splendid a couple as Edwin Teale's Gram and Gramp.

ALAN DEVOE.

NATURALIST AT LARGE.

By Thomas Barbour. 314 pp. Illustrated by photographs. Little, Brown and Co., Boston. $3.50.

Now and then one hears of a book which is described as leaving nothing to be desired. Dr. Barbour's autobiography does not fall into such category. When the reader arrives at the last sentence on the last page, he ardently desires that as much again remained ahead! The very first paragraph of the book presents a quality seldom met with in the autobiographies of scientists—the spice of humor. That initial hint is sustained throughout the volume and constitutes a delightful charm which adds immeasurably to the conversational text. It is as if one were seated comfortably in the office of the Agassiz Museum and listening to its Director talk.

One cannot but be hugely impressed with the diversification of Dr. Barbour's interests. Unlike the concentration on a single phase of natural science which is the mark of so many, the reader is swept

from mammals and birds to amphibians and reptiles, crustacea and anthropology with no jarring breaks or abrupt transitions. Whether the text concerns the sudden capture of a butterfly in the Dutch East Indies or a rare lizard in South America, the incidents flow together with a universal enthusiasm of discovery which never lacks in singleness of purpose. His delight at the finding of a blind shrimp in a Cuban cave is no less a thrill than his odoriferous labors upon a stranded whale on a New Jersey beach.

All through his world wide experiences, from his honeymoon in the Orient to South America, Africa and Europe, the fact that the Doctor has had a perfectly wonderful time doing things shines like a lighthouse through the pages.

Far beyond the scientific fruits obtained, he has been a good-will ambassador and has left a trail of friends and beneficiaries literally over the earth's surface.

Those who know something of museum work will revel in his illimitable knowledge of such institutions. The chapter on "Naturalists in Dispute" is amazing in its searchlight descriptions of the oddities to be encountered in museum personnel, administration and field research. Illustrative of the keen humor which threads the book is the last sentence of this chapter, to wit, "You see, my thesis is that working in a museum used to make people odd. Of course, that's not the case of my colleagues or me. As one of my daughters has said of us, 'you don't have to be crazy, but it certainly helps' "! There is a chapter too, on what he terms the Glory Holes of museums, those astonishing repositories of odds and ends which range from someone's gallstones to discarded overshoes, a chapter which will banish the most confirmed case of blues into oblivion.

His long friendship with such figures as David Fairchild and John C. Phillips exhibits his capacity for warm humanity, modesty and affection. Indeed, it has been his contacts with his fellowman that has resulted in much of what he has accomplished in the wholehearted devotion to that museum to which he has given so much of his life, time, talents and worldly goods.

His remarks on Florida in other days as well as now, reveal his love for that only tropical part of this country and his satisfaction that at least a portion of that wonderful zone penetrates the United States. The tropics have always appealed to him and his journeys into Central and South America, Panama and the West Indies have left behind many an impetus to science as well as fervent and thankful memories on the part of residents. Barro Colorado stands as one of his numerous monuments, the Harvard Botanical Garden, near Cienfuegos, Cuba, another.

His tributes to his colleagues, "those who help," are spontaneous and hearty; to them, indeed, he gives credit for much that he has done himself. The very account of the great collections at Cambridge reflect his indefatigable efforts in seeing to it that they must be as complete as possible, but these efforts are submerged in his praise of those who have them in charge. His greatest monument is that twentieth century science is far richer for his work and life and that the mark of his personality on it is ineradicable.

No title could be more appropriate for any naturalist's life story . . . at large. Everything about Tom Barbour is large. His physical frame, to which he so often and amusingly refers, his mind, common sense, scientific attainments, generosity and capacity for making friends. Those who know him are hardly willing, however, to stop at "large." They are firmly convinced that the correct word is . . . tremendous!

ALEXANDER SPRUNT, JR.

CENTENNIAL CHECK-LIST OF THE BIRDS OF CUMBERLAND COUNTY, PENNA., AND HER BORDERS.

By Edward S. Frey. Publisher Edward S. Frey, 517 Hummel Ave., Le Moyne, Penna. 68 pp. 1 map. 1943. $1.00.

This little booklet is more than "just another bird list." It brings up to date a previous famous compilation made a hundred years ago by Spencer F. Baird and his brother, William M., this list being well treated in the prefatory note.

The introduction gives a concise description, from geographical and botanical standpoints of Cumberland County, some particular aspects being stressed which show special ornithological attractions, such as the great hawk flights at Sterrett's Gap and the swans on the Susquehanna River. The life zones represented are both Carolinian and Alleghenian with a touch of Canadian. Full acknowledgment is made to those assisting in the compilation of the list.

The material itself is the result of care-

ful research and field work. Dates are given for the extremes of occurrence and many specific ones when dealing with uncommon species. It would perhaps, be advisable for all future such lists to pattern themselves after the method adopted by A. D. Cruickshank in his "Birds around New York City" where both extreme dates and those when a species can be normally expected are given. We note that both black ducks are included despite the conclusions reached in Kortright's recently published "Ducks, Geese and Swans of North America"!

Though necessarily brief in wordage, very interesting comments are found among several species, such as the reference quoted from the Baird list concerning the "great terror" caused to settlers in the County by the appearance of flocks of the Carolina paroquet in other days! The summary shows a total of 281 species in all classes and there is a hypothetical list with an interesting comment on the occurence of Kirtland's warbler.

The several typographical errors are evidently the fault of the printer, as considerable variation appears in the spelling of the same word. This, though regrettable, is no reflection upon the original thoughtful care which produced the work.

It will doubtless be of much assistance to newcomers in that area, as well as an up-to-date reference for workers of long residence and the author has given unsparingly of his time and knowledge to produce a very worthwhile contribution to the ornithology of his county and state.

ALEXANDER SPRUNT, JR.

WATERFOWL IN IOWA.

By J. W. and M. R. Musgrove. 122 pp, 8 color plates by M. F. Reese. State Conservation Commission, Des Moines, Iowa. 1943. $1.00.

The Iowa Conservation Commission can well be proud of this handy guide to the waterfowl of Iowa. The authors and artist have done an excellent job of assembling and presenting in a clear concise form the important data on all Iowa species.

One of the most effective ways to further the conservation of any wild resource is to arouse in those who exploit it an interest in the individual species which constitute the resource. It is to be hoped that the Musgroves' excellent little book will in time find its way into the hands of a high percentage of Iowa's 40,000 duck hunters. Most duck hunters are incipient naturalists and state conservation commissions can do much to obtain hunter acceptance of sound conservation practices through the publication of more books of this sort designed to stimulate an intelligent interest in the various groups of wild animals which are commonly exploited either for sport or profit.

RICHARD H. POUGH.

A GUIDE TO BIRD WATCHING.

By J. J. Hickey. 262 pp. Oxford University Press, New York. $3.50.

Almost every bird enthusiast likes to feel that he is an amateur scientist. Here at last is a book which will do much to help those with such ambitions to realize them. As W. S. Thomas pointed out in his recent book "The Amateur Scientist," one joins exalted company when one achieves real standing as such. Much of the pioneer work in science has always been done by non-professionals, and many of the world's greatest scientists were essentially amateurs. Today, as in the past, the task of increasing the body of scientific knowledge in many fields still rests almost entirely on the shoulders of the amateur scientists, and in none is this truer than in ornithology.

For some time there has been a great need for a book like Mr. Hickey's which would serve to orient beginners and point out what are currently the most promising branches of ornithological inquiry. Unfortunately, far too many sincere enthusiasts are still concentrating in a few limited fields that have been so thoroughly worked in recent years as to be almost barren of further significant results for probably some time to come. Such wasted effort, often representing thousands of hours of observation, is all the more tragic when one realizes how many fields of inquiry have hardly been touched . . . fields so virgin that only a few hours of meticulous observation and carefully taken notes are sufficient to enable any amateur ornithologist to make a valuable contribution to scientific knowledge.

"A Guide to Bird Watching" is an extremely concise summary of the present state of ornithological knowledge. It brings together for the first time a vast amount of material that heretofore has been scattered far and wide in the now very

extensive literature. After starting off with a helpful chapter on how to begin bird study, the various fields of possible inquiry, such as migration watching, bird counting, studies in bird distribution and bird banding are taken up in turn. The book's greatest value, however, to the bird enthusiast who wants to feel that the time he spends on his hobby is producing data of some value to the world of science, lies in the degree in which Mr. Hickey constantly suggests specific fields of inquiry that are likely to be productive of worthwhile results.

In an interesting series of appendices, Mr. Hickey summarizes the late C. A. Urner's work on bird tracks, tabulates the results to date of breeding bird censuses in North America, presents a detailed outline of the questions a life-history study of a bird should answer, and furnishes for the guidance of the beginner an annotated bibliography of the outstanding books in the various fields of ornithology, as well as a list of the bird clubs of the continent.

It is to be hoped that for many, Mr. Hickey's book will open the door to one of the most rewarding experiences life has to offer—membership in the great fraternity composed of those who have contributed to the advance of the science of ornithology.

RICHARD H. POUGH.

COMING DOWN THE WYE.

By Robert Gibbings. With engravings by the author. 189 pp. E. P. Dutton & Co., New York. $3.00.

The Wye is a river which flows through Wales and England for 130 miles before it empties into the Severn estuary. It is considered "the most beautiful, romantic and legend-haunted river in either England or Wales."

The author displays his ability as an artist by the many exquisite engravings. The records of his observations entitle him to a place with leading writer naturalists.

His display of humor and his method of mixing old fables with folklore, along with his natural history observations, indicate a rare talent to inspire and, at the same time, to amuse the reader.

Here is a book which should have a place in the libraries of many, especially naturalists, sportsmen and philosophers. The author's comments on places to eat, the food, how he was thrown from his horse, reflections on travel, natural history, human nature and even science, as well as art, expressed so often with a keen sense of humor has produced a book which can be read and reread with pleasure as well as inspiration.

W. E. SANDERSON.

ANIMAL TRACKS.

By George F. Mason. 95 pp. Illustrated. William Morrow and Co., New York, 1943. $1.50.

Valuable for the amateur as well as the professional, this competent book presents much useful information in both text and illustration, and is of small enough size to be carried into the field on nature walks. Not only are the walking tracks of animals shown, but also the tracks made when running, bounding, galloping, speeding, jumping, hopping, trotting and loping. Another useful feature of the book is the fact that the author speaks of the tree-climbing animals as "pairing" their tracks, whereas the animals that live on the ground seldom show the front feet paired, although the hind feet are generally paired in both tree-climbing and ground-living animals. The author also points out that the exceptions are caused when an animal is moving at a different gait.

On the whole, Mr. Mason should be commended for bringing so much useful information together in a single publication.

W. E. SANDERSON.

EDIBLE WILD PLANTS OF EASTERN NORTH AMERICA.

By Merritt Lyndon Fernald and Alfred Charles Kinsey, 452 pp. Illustrated. Idlewild Press, Cornwall-on-Hudson, N. Y. $3.00.

Several years of camping have enabled the authors to experiment with the plants of the woods and fields which furnished attractive food and they have also searched the writings of others in various parts of America, Europe and eastern Asia for the wild plants which may be used for food—with the result that more than one thousand wild edible plants are included in this book.

The first chapter classifies the edible wild plants according to uses—all the way from purees and soups to table-oil and

butter. The second chapter discusses poisonous flowering plants likely to be mistaken for edible species; while the third chapter is devoted to the edible flowering plants and ferns of eastern North America. The last chapter treats of mushrooms, seaweeds and lichens.

MARIE V. BEALS.

AMERICAN WOMEN OF SCIENCE.

By Edna Yost. 232 pp. Frederick A. Stokes Co., New York and Philadelphia, 1943. $2.00.

"American Women of Science" consists of short biographical sketches of twelve modern women each outstanding in her field of research.. In the twelve biographies the author emphasizes the high ideals and painstaking work of these women, who were often pioneers and therefore had to fight contemporary prejudices. Several, like Dr. Hamilton and Dr. Pennington, work in fields in which the results of their research are directly applicable to the improvement of human health. Others, like Dr. Blodgett who works in the physical sciences, have made discoveries leading to great improvements in modern inindustry. And still others, like Dr. Cannon and Dr. Hyman, have worked or are working in the field of pure scientific research.

The book is well written and the facts clearly presented. Each biographical sketch is as fascinating as the preceding and the reader's attention is continually held. The book fills a real need for the interesting informative presentation of the work which women are accomplishing in science today. Since the author herself admits that many other names might well be included in the present volume, it is to be hoped that another of similar nature will soon be forthcoming.

"American Women of Science" is well suited for high school and college students as well as the interested layman.

MADELINE E. PIERCE.

Books for Boys and Girls

BEYOND THE CLAPPING MOUNTAINS.

By Charles E. Gillham, 134 pp. Illustrated. The Macmillan Co., New York, 1943. $1.50.

"Beyond the Clapping Mountains" is a book that will never grow old and one that everyone will enjoy reading for folk tales have a universal appeal. If the book were to be graded it would probably be suggested for the intermediate group but the primary school child will love to hear the stories read and the adult, unfamiliar with Eskimo folklore, will be captivated by the refreshing simplicity of these stories —the Aesop Fables of the North.

Mr. Gillham spent eight summers in Alaska as biologist for the United States government and, with the help of an English-speaking Eskimo, collected these delightful stories from the natives. The stories, he tells in the introduction, are the ones that have been told for centuries in the Kashims or men's clubs where men and boys gather to spend the long monotonous Arctic days. There is nothing scientifically accurate about them; they are tales which have grown up around the animals which the Eskimos know and love.

Chanimun, the little Eskimo girl who made the illustrations, has put into them all the simplicity and charm of her race, and Mr. Gillham hopes that from reading this book one will get a "picture of the Eskimos as they are—bright, cheery and intelligent."

As many of these tales are rapidly being forgotten due to the increased influence of the missions, the disappearance of the medicine man and the effects of the war, this little book is a real contribution to American folklore and "historically it might be classified as the only literature of the Innuits of Alaska."

RUTH D. TURNER.

THE GRASSHOPPER BOOK.

By Wilfrid S. Bronson. 127 pp. Harcourt, Brace and Co., New York. 1943. $1.75.

"The Grasshopper Book" is an interestingly written account of the life and habits of our grasshoppers and their allies. It is a book suited to children from the fourth or fifth grade through junior high school and should prove a good addition to the school nature libraries.

Mr. Bronson's clever illustrations stress the desired points without the help of wordy explanations and their humorous touch makes them especially attractive to children. The many comparisons drawn between these insects and various other animals and machines are a little farfetched at times but no doubt they will

be of helpful interest to the young reader.

As a result of his close observation of the many pet grasshoppers, crickets and katydids which he kept in his laboratory, Mr. Bronson tells many interesting tales about their habits of feeding, cleanliness and breeding. He gives interesting notes on the economic importance of this group of insects and the uses to which they have been put by the American Indians, native Africans and others.

The chapters on the families of the order of straight wing insects are well done but the family tree of the order does not seem to correspond with the best authorities of the day. The termites are shown as part of the order and from them the roaches, mantids and walking sticks arise. The earwigs are shown as an offshoot of the roaches!

Nevertheless as a result of reading this book I am sure any youngster will look forward to the spring when he can catch a few grasshoppers and crickets for himself, watch their interesting habits and possibly discover a few new ones. The book will awaken interest in the uninitiated as well as foster the interest of those children already well along in their nature hobbies.

RUTH D. TURNER.

THE STORKS FLY HOME.

By Jane Tompkins. 58 pp. Illustrated. Frederick A. Stokes Co., New York and Philadelphia. 1943. $1.50.

"The Storks Fly Home" is a delightful modern fairy tale concerning the lives of Julie and Jon, two little Dutch children. It gives a nice picture of the importance of storks to the Dutch people and brings the story right up to date by having the storks bombed out of their lofty nest by "swastika planes." The storks had nested on the roof of Julie's and Jon's house and the little stork was still unable to fly at the time of the bombing. When it became necessary for the people to evacuate the town, the children were reluctant to leave the storks and wondered what would happen to the helpless baby. In fairy tales, however, everything is possible, so when the nest was broken up the mother merely coaxed the youngster onto her back and flew off with it to safety. Later when the storks appear at grandma's house Julie and Jon are sure they are the same ones.

The story is well written and should prove interesting to children up through the intermediate grades.

RUTH D. TURNER.

AUSTRALIA: The Island Continent.

By Grace Allen Hogarth. 59 pp. Houghton Mifflin Company, Boston. 1943. $2.00.

This thin squarish book, if written for the early teen-age group, manages nicely to hold the interest of the adult reader through its concise informative text.

One chapter introduces the natural history. We are told: "The leaves of the gum trees also protect themselves from the heat, turning edgewise to the sun, and this is one of the reasons why the gum tree gives so little shade."

Best of all, the illustrations are gay and imaginative, making this introduction to the "land down under" pleasant education.

DON ECKELBERRY.

IMPORTANT NOTICE!

Due to paper shortage and cost of printing, we request your cooperation in keeping up-to-date our list of those who wish to receive the supplements along with the magazine.

Will you let us know, by January 3, 1944, if you wish to receive the Christmas Count, the Season Reports and the Breeding Bird Census during the following year?

Also, do you want an INDEX to *Audubon Magazine* for 1943? The INDEX is being printed as a separate leaflet this year and will be mailed to you, upon request, with your January-February, 1944, issue.

Your answer by postcard is sufficient. Thank you.

BACK ISSUES WANTED

January-February, 1943

and

March-April, 1943

Our office supply of the above magazines has been exhausted. If you have copies for which you have no further use, we shall appreciate it if you will send them to us. Thank you.



The Changing Seasons



By Ludlow Griscom

FIRST of all I must mention the passing of the Chicago Region, with a word of warm thanks and appreciation to Mrs. Herman Dunlap Smith for her efforts to keep the record going, in the midst of a particularly busy life, until observers reached almost the vanishing point, and war restrictions made it impossible to cover the most important localities. Mr. Hammond has also sent in his last report from the Dakotas, as he is about to leave for war work. He carries our thanks and best wishes. It is greatly to be hoped that someone else can be found to supply a summary from this most important area.

August and September are the peak months for the first half of the fall migration, and the two main groups involved are the shore birds and the warblers (with other tropical American summer residents). Much depends in the Northern States on the number of cold waves, causing mass departures southward. The Northeast had a poor season, due chiefly to mild and uniform temperatures, but the Central States fared very much better, reporting a particularly good season. For reasons which are much less clear, the Northeast also had the poorest shore-bird flight in a decade, obviously a purely local problem, as the rest of the United States reports a good year; the buff-breasted sandpiper was noted in Minnesota, Missouri and Texas. I might add that the Northeast was definitely in starvation corner, as the flights of shearwaters, jaegers and phalaropes failed also, and it is unable to contribute a single great rarity!

All regions report a very poor number of southern herons, the northward wanderings of which failed to materialize for the third year in succession. Easterners can scarcely sympathize with Missouri, however, in reporting a maximum concentration of egrets of *421 only* (!); no New Englander can hope to see this many egrets in a lifetime.

Dabbling ducks are already abundant in every part of the country except the Northeast: they had a good breeding season, and the Dakotas report a marked increase of redhead and ruddy ducks. The blue-winged teal occurred in good numbers throughout the country, and the pintail in great abundance in the Far West.

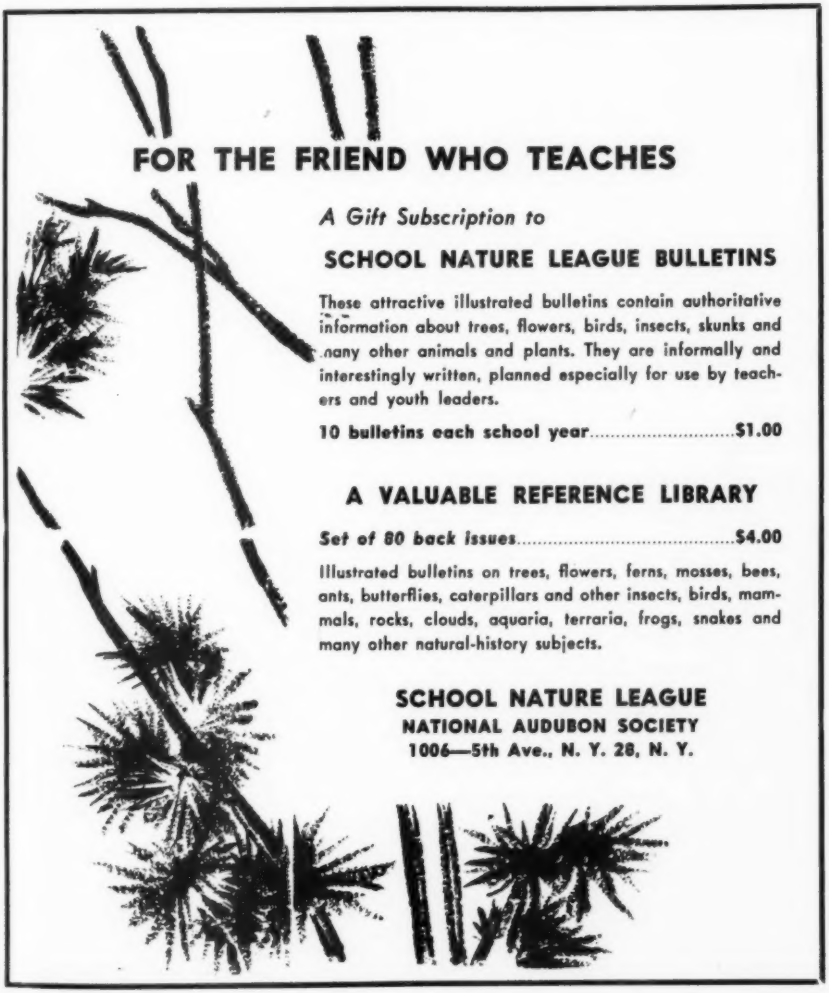
The fall of 1943 is definitely a flight year for the erratic little red-breasted nuthatch, which is already as far south as South Carolina and Missouri. For the second year in succession there were remarkable numbers of the Cape May warbler in the Northeast. The blue jay, often wrongly thought of as a permanent resident, is really highly migratory, and was abundant this year from New England to Minnesota. There was an encouraging number of reports of white-tailed kites in California.

Two of the greatest advantages of a series of regional season reports deserve annual emphasis and illustration. One is that many widely-ranging species are divided into "populations," with widely-varying migration dates. Witness in the present Season Supplement arrival dates for various species in Florida and Texas, long before Northerners are aware that these species have even begun to migrate. Witness again the departure dates for various land birds given by Carolina; in several cases the New England reader will know very well that the departure dates of the same species in New England will be a month to six weeks later.

The other point is the relativity of the terms "common" and "abundant," and the *importance* of *giving actual counts*. Few Easterners are aware of the infinitely greater abundance of birds in the Southwest and the Far West; not the variety of species, but the great number of individ-

uals to be seen in a day, of many of them. So far as I know the maximum number of pintail ever seen in a day in eastern Massachusetts is 120; think of seeing 35,000 at High Island, Texas, in late September; and then Utah reports a peak of one-half million in one marsh in early September. Utah also reports other sensational numbers—10,000 white pelicans, 300,000 green-winged teal and 4-5000 avocets! Very few indeed are the cases where the situation is reversed, but this fall an excellent illustration is supplied by southern California. Mr. Cogswell reports the sanderling as "excessively abundant," and one notable flock contained 700 birds; New Englanders, who go to good localities on Cape Cod, can count on flocks of 5-10,000 every year.

Great rarities for this period: a white pelican in southern New Jersey; a spoonbill in South Carolina; parasitic jaegers in Utah; a reddish egret in southern California.



CHRISTMAS BIRDS

By Leonard Wing

A Summary of Forty Years of Counting

FOR the forty-fourth time, Christmas will send forth those who count birds. Forty years and more constitute a long time for a record of the magnitude and scope of the Christmas counts. Many different people have taken part, and as yet I hesitate even to suggest the number. The number certainly totals thousands—perhaps 15,000.

In 1900, the first year, twenty-five reports came from fifteen areas. From that year to and including last year 7,744 reports have come from all states and provinces north of the Rio Grande. In addition, scattered reports have come from Baffin Island, Northwest Territories, Alaska, Newfoundland, Cuba, and Puerto Rico. The number has increased yearly, and a goal of 1,000 a year may be reached some day.

The total hours for the initial twenty-five reports reached fewer than eighty, but the yearly total now exceeds one hundred times that. No one can ever say just how many hours the years represent because of some omissions and confusions in hours reported. Although the figures actually reported and usable totalled 69,178.91 for the first forty years, the actual sum of all now undoubtedly exceeds 100,000. In addition must be reckoned the learning time, the millions of unseen hours of hard yet pleasant work that support the census as the unseen seven-eighths supports the iceberg.

People are always interested in knowing how far they travel in how long. Miles or hours have not always been given, but in 1941, for example, those censuses reporting both averaged 17.27 miles and 15.54 hours—thus an average of 1.11 miles for each hour of travel.

Since 1924 the *Canadian Field-Naturalist* has published Canadian records, some of which also appeared in *Bird-Lore* or its successor, *Audubon Magazine*. The distribution by states and provinces of the 7,744 follows:

Nova Scotia	13	Wisconsin	247
Quebec	27	Ohio	565
Maine	79	Indiana	189
New Hamp.	92	Illinois	293
Vermont	93	Minnesota	121
Mass.	575	Iowa	201
Connecticut	327	Nebraska	57
Rhode Island	147	North Dakota	84
New York	911	South Dakota	64
Pennsylvania	575	Missouri	145
New Jersey	461	Arkansas	23
Delaware	18	Oklahoma	56
Maryland	100	Kansas	69
Dist. C'l'mbia	24	Wyoming	21
Virginia	138	Montana	57
West Virginia	63	Idaho	31
Kentucky	66	Manitoba	24
Tennessee	92	Saskatchewan	14
No. Carolina	91	Alberta	28
So. Carolina	66	Colorado	104
Georgia	93	Utah	21
Florida	164	New Mexico	19
Alabama	43	Arizona	35
Mississippi	35	Brit. C'l'mbia	54
Louisiana	21	Washington	72
Texas	80	Oregon	52
Ontario	309	California	205
Michigan	183	Nevada	7

The number of individual birds reported in 1900 was 10,725; millions have been reported since, and the number now exceeds three million a year. The average number of birds observed for each hour of travel has increased to some extent. But if we consider only those birds which do not congregate in huge roosts and rafts—and which were thus made more accessible by the automobile—we find that the number reported per hour remains almost the same as forty years ago. It varies between fifty and sixty.

Five hundred and thirty-five species of birds (523 native, ten exotic, two feral) have appeared in front of the census takers. In addition, a number of native game birds, particularly the bob-white and valley quail, have been transplanted and thereby have become exotics in their new environment. The record includes one extinct bird, the heath hen. The exotic, feral, and extinct species are:

EXOTICS

graylag goose
Hungarian partridge
ring-necked pheasant
golden pheasant
Chinese spotted dove
starling
English sparrow
European tree sparrow
chaffinch
British goldfinch

FERAL

mute swan
rock dove

EXTINCT

heath hen

I do not have, at the moment, a completed tabulation for the last three years, but if we take the reports of the first forty years as a unit, the leading species in distribution, rate of observation, and frequency of occurrence are:

DISTRIBUTION

(reported from more than 50 states and provinces)

English sparrow
hairy woodpecker
downy woodpecker
white-breasted nuthatch
golden-crowned kinglet
song sparrow
horned lark
robin
slate-colored junco

RATE OF OBSERVATION

(based on birds reported for hours of observation)

red-winged blackbird
crow
grackle (Florida, bronzed and purple)
slate-colored junco
robin
tree sparrow
starling
English sparrow
scaup duck (greater and lesser)
mallard

FREQUENCY OF OCCURRENCE

(ratio of total census and censuses reporting the species)

downy woodpecker
song sparrow
crow
hairy woodpecker
slate-colored junco
white-breasted nuthatch
black-capped chickadee
blue jay
tree sparrow
golden-crowned kinglet

JANUARY 3, 1944

Please mail your Christmas counts so that they will reach this office by the above date, if possible.

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THE ADULT ADVISOR RECEIVES—*Things to Do*, a booklet of suggestions for club activities.

TO ENROLL—simply send dues (10 cents per member) for as many members as you enroll and state whether you wish the junior or senior text. Minimum enrollment, 10.



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Letters

Sirs:

We have enjoyed *Audubon Magazine* so much we feel we ought to express our appreciation for the very stimulating articles.

"Nature, the Overseer," by Alan Devoe, was an answer to all my problems. For years I have worried about our four acres. Now I see that all I have to do is to relax and let nature take its course. Just yesterday a hawk landed at our very doorstep to snatch a little red squirrel. I felt very sad because it was such a darling little squirrel, but I consoled myself with the thought expressed in Alan Devoe's article.

One of my favorite radio commentators has been appealing for gifts for wounded soldiers in the hospitals and I decided the very nicest gift I could send would be a year's subscription to *Audubon Magazine*. I am enclosing my check for two dollars. The magazine to go to service men, Halloran Hospital, Staten Island, N. Y.

Nyack, N. Y. BERTA HADER

Sirs:

I take pleasure in reporting the following incident, related to me by a relative.

He was a passenger on a South-Kearny-New York bus at 7:45 A. M., October 24th of this year, when the driver suddenly drew up at the side of the road and got out to pick up a bird, which had narrowly escaped the wheels. As it seemed to be stunned, the driver dipped its beak several times in a puddle in the road, then returned with it to the bus and continued the trip. When the bird revived and began to flutter, the driver released it through the window. The whole incident was very brief. My relative, who was interested in birds, had recognized it as a red-winged blackbird.

I believe that your Society will be interested in bringing this incident to the attention of readers of *Audubon Magazine*, in the hope of encouraging not only human kindness but interest in conservation.

New York City. H. C. RAVEN

Sirs:

Your magazine has arrived and I can hardly exaggerate my enthusiasm for your excellent publication. I shall try to be patient until the next issue is due. That won't be easy since I've read a copy!

New York City. EDITH CAUCHI

Sirs:

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I understand that you have lost many good writers, but your present writers cannot be praised too highly. I am glad I renewed my subscription; only wish I had done so sooner.

Hamilton, Ohio. BYRON L. BURNETT, JR.

Sirs:

Will you please send my brother, at his overseas address, your notice of renewal of membership and subscription to the magazine. He said last year that when he received the lovely card with a picture of birds, it did much to make his Christmas a happy one.

CORPORAL T. B. ANTONIAZZI

Westport, Conn.

Sirs:

I have just finished reading the "Director's Report" in the July-August issue. I take great pride in being a member of an organization which can make such progress in these difficult times.

Granby, Conn. JOHN S. DUNNING

Sirs:

Perhaps all you people at Audubon House would like to know that I find my present location, Iceland, to be a rich field for ornithology. I am located near a large fjord and can identify water birds with the aid of my binoculars from my very barracks' door. In fact, daily, dozens of golden plovers and Hudsonian godwits feed in an Iceland farmer's hayfield not more than fifty yards away. Best of all, two robins flew over one day while I was on guard duty. Made me feel at home. According to Magnus Bjornson, author of "Birds of Iceland," but two or three records of robins have been reported for Iceland.

Iceland. LUTHER M. CHOVAN

Luther's photograph of a wren appeared in our March-April issue; perhaps he'll send us more photographs from other parts of the world. For those of you who want to correspond with Service men whose letters appear in this column, we suggest that you send letters to us for forwarding.

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